Background Information & Preliminary Concept

for the

Interpretive Master Plan

for

Ice Age Floods in Washington State Parks

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Table of Contents

Appendices

Letter to Reviewers

Dear Reviewer:

Thank you very much for taking the time to review this document. The success of the project hinges in part on your input, so your involvement is critical. This is the second submittal for the project to develop an Interpretive Master Plan for interpreting the Ice Age Floods in Washington State Parks. In reviewing this document, you may find yourself asking the following questions, so we have tried to prepare answers in advance:

- Why did you organize the parks this way instead of along the pathway of the floods?
  This is a working document that will be used by WSPRC to develop an interpretive and wayfinding network relating to the Ice Age Floods. Since they are the ones who have to use it, we organized it in a way that we thought would make it easiest to find the information they wanted, which is alphabetical by region. This can be changed for the final, but it is important to bear in mind that for the plan to be effective, it must be easy to use by those who must use it.

- Where are the remaining site maps?
  We are hoping to have site maps for each site with fixed interpretive strategies. However, we do have budget limitations (fee includes a maximum of 10 illustrations or maps), so we are hoping to get electronic versions from somewhere so we do not have to spend as much time creating site maps, which would allow us to include more within our budget constraints. In addition, we need more precise maps on which to locate fixed strategies as a basis for conducting the assessment of permitting issues.

- Where is the information on permitting issues?
  The assessment of environmental issues depends on the actual strategies and placement of those strategies. Consequently, the assessment must wait until the recommended strategies and location of those strategies are approved. When that approval is given, the environmental section will be prepared and submitted by itself for review prior to being included in the final plan.

- What about conceptual design?
  A conceptual design for an interpretive strategy such as a panel includes a description of possible graphic elements and visuals and supporting text. The intent is to make it clear to a designer and to the client what is wanted in terms of design and information. The design concept depends significantly on location, and obviously is only relevant if a strategy is approved. Consequently, design concepts are developed as part of the final plan, after review and approval of the draft plan.

- Where are the Cost Range Estimates and Implementation Plan?
  These elements also depend on design and location, and are also relevant only if a strategy is approved. That is why they too are developed for the final plan after approval of the draft.

- Didn't we add Lyons Ferry and Frenchman Coulee in the contract?
  These sites will be included in the final plan – an assessment and recommendations for Lyons Ferry similar to that prepared for the other sites, and an assessment of the potential of Frenchman Coulee from the perspective of an Ice Age Floods Interpretive Network. However, approval for assessing the sites was received less than 2 weeks before this submittal was due so we did not feel we had time to conduct the necessary site research and develop recommendations to be included in this submittal. The draft plan for these sites will be developed and submitted as an interim submittal so we can get feedback prior to including them in the final plan.

- What about all the other interpretive opportunities in each park?
  This project only focuses on interpreting the Ice Age Floods. Consequently, it does not address other interpretive opportunities that should be developed for each park.

- What about all the opportunities and sites outside the parks that could be used to interpret the floods?
  Again, this project is limited to specified state parks plus Lyons Ferry and Frenchman Coulee. We provided brief information on other key sites within the project area that are keys to an effective wayfinding and interpretive network, but the interpretive planning for those sites is not a part of this contract.

- Where did you get some of this information???
  All the information on the floods and on the parks came from sources such as technical specialists or the WSPRC web sites. In other words, it did come from a source that we thought was reliable. There is a lot of information on this topic and some differing opinions. If you disagree with the information, please note your source so we can delve further and resolve the issue. This does not apply to such comments as 'we do not have an amphitheater," but primarily to comments on the technical aspects of the story.

We hope this answers some of your questions. Feedback needs to go to Bill Fraser or another designated member of the WSPRC for review before being passed on to me. That way comments will represent the 'voice' of the WSPRC. In other words, if differences exist between comments or suggestions, I would prefer knowing which direction is preferred by WSPRC. Thank you again for taking the time to review this document.

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Introduction

Introduction

Plan Background

Introduction

Some 15,000 years ago a series of cataclysmic floods swept across eastern, central and southern Washington, sculpting and altering the landscape in the blink of an eye in geologic time. The flood waters scoured new channels, created immense waterfalls, left huge gravel deposits, redistributed topsoil, and significantly influenced how humans use the land today. Much of the impact of the Ice Age Floods is concentrated in central and eastern Washington, which bore the brunt of the initial force of the floods. The State Parks in this region and along the Columbia River, which was the route of the flood waters, are uniquely positioned to interpret this major geomorphologic event either because the park unit contains key features, or is proximate to key features. All State Parks within the flood region offer some form of interpretive information related to the event but those opportunities were developed independent of other park units, resulting in gaps in the story and some duplication. In addition, many of these interpretive opportunities are outdated.

In February 2001, The National Park Service released the "Ice Age Floods Study of Alternatives and Environmental Assessment" that analyzed several alternatives for a national designation in the four state area (Montana, Idaho, Washington State and Oregon) impacted by the floods, and identified key areas for interpretive and wayfinding (orientation) opportunities, the bulk of which are in Washington State.

The Washington State Parks and Recreation Commission (WSPRC) is seeking to upgrade existing interpretive opportunities related to the Ice Age Floods in the State Parks, and to develop additional opportunities. However, they want those opportunities to be developed within the context of an integrated network so each opportunity can function on its own and as part of a larger network of interpretive opportunities integrated not only with other WSPRC units, but with Scenic Byways, museums and the interpretive efforts of other state and federal agencies across the four states within which the floods occurred.

This plan is the first step in an effort to develop a coordinated, statewide network of interpretive and orientation strategies associated with the Ice Age Floods that will fit within the context of a larger network encompassing four states. This plan will identify a common vision for the WSPRC units (identified in Figure 1) involved in interpreting the Ice Age Floods, and will recommend interpretive and wayfinding strategies based on the concept of a network that encompasses all park units and is compatible with the efforts of other agencies and entities.

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Process

The development of the plan is occurring in two major phases:

Phase I:

Gathering and assessment of key background information, preliminary identification of overarching themes (messages/concepts) and development of interpretive concept. The background information includes goals, target audiences, parameters affecting the development and functioning of the information network and opportunities for interpretation. The concept is an overview of the network or vision for the state parks, plus a listing of strategies being considered for each unit and for the state as a whole.

Phase II:

Development of the plan. This involves development of the theme hierarchy – which will include Sub-Themes and key storylines – media prescription (wayfinding and interpretive strategies), cost range estimates and implementation plan.

This is the first submittal of Phase II of the project. It contains the following:

- Draft theme hierarchy (themes and supporting storylines)
- Draft media prescription
- Goal hierarchy
- Audience Analysis
- Parameters
- Interpretive Opportunities

It does not contain design concepts for the interpretive and wayfinding strategies, the assessment of environmental issues, cost range estimates, implementation plan or all supporting graphics. Upon receiving comments from reviewers, those sections will be added, and existing sections expanded and/or modified as appropriate and necessary. Completion of the final plan is anticipated by June 30th, 2006.

Key Notes

The following explanations relate to items not included in this submittal but included in the final:

Environmental Issues:
The assessment of environmental issues depends on the actual strategies and placement of those strategies. Consequently, the assessment must wait until the recommended strategies and location of those strategies are approved. When that approval is given, the environmental section will be prepared and submitted by itself for review prior to being included in the final plan.

Conceptual Design:
A conceptual design for an interpretive strategy such as a panel includes a description of possible graphic elements and visuals and supporting text. The intent is to make it clear to a designer and to the client what is wanted in terms of design and information. The design concept depends significantly on location, and obviously is only relevant if a strategy is approved. Consequently, design concepts are developed as part of the final plan, after review and approval of the draft plan.

Cost Range Estimates and Implementation Plan:
These elements also depend on design and location, and are also relevant only if a strategy is approved. That is why they too are developed for the final plan after approval of the draft.

Lyons Ferry and Frenchman Coulee:
These sites will be included in the final plan – an assessment and recommendations for Lyons Ferry similar to that prepared for the other sites, and an assessment of the potential of Frenchman Coulee from the perspective of an Ice Age Floods Interpretive Network. However, approval for assessing the sites was received less than 2 weeks before this submittal was due so we did not feel we had time to conduct the necessary site research and develop recommendations to be included in this submittal. The draft plan for these sites will be developed and submitted as an interim submittal so we can get feedback prior to including them in the final plan.

Plan Goals

Introduction

The mission of the Washington State Parks and Recreation Commission is:

> *The Washington State Parks and Recreation Commission acquires, operates, enhances and protects a diverse system of recreational, cultural, historic and natural sites. The commission fosters outdoor recreation and education statewide to provide enjoyment and enrichment for all, and a valued legacy to future generations.*

The word 'enrichment' in the 21st century of management can be interpreted to include facilitating economic benefits to surrounding communities, especially rural communities, specifically through fostering sustainable tourism opportunities.

In October 2003, in anticipation of its centennial as a state park system, the Washington State Parks and Recreation Commission developed its Centennial 2013 Vision:

> *"In 2013, Washington's state parks will be premier destinations of uncommon quality, including state and regionally significant natural, cultural, historical and recreational resources that are attractive for public experience, health, enjoyment and learning." Within the plan, one of the "Legacy" projects is to "Unveil the Mystery of the Ice Age Floods."*

In summary, interpreting the Ice Age Floods in the Washington State Parks not only fits within the broad purview of the mission statement, but is a specific goal identified by the agency.

Information Network Objectives and Desired Outcomes

The following information network objectives and desired outcomes were derived from the agency mission.

Objective 1 and associated Desired Outcomes

Objective 1:

Protect and conserve Ice Age Floods features in the parks while using them to provide recreational and educational experiences.

Associated Desired Outcomes:

1-1: An increase in the sense of appreciation and personal value to visitors for the features associated with the Ice Age Floods event and story specifically, and as an extension, to natural and cultural resources in general. This outcome can be accomplished in part by making visitors aware of the value of intact resources as a tool for discovering the 'story' of our past

1-2: An increase in awareness among users of negative personal impacts to the features associated with the floods and ways those impacts can be minimized. This outcome will contribute to a stronger stewardship ethic and a decrease in negative impacts due to ignorance.

1-3: An increase in appropriate use patterns and behaviors among park visitors and those who take part in interpretive opportunities related to the floods that take place outside of park boundaries.

1-4: An increase in awareness of the story of the Ice Age Floods and the impact they had on the physical landscape and on subsequent cultural use of the land and its resources.

Objective 2 and Associated Desired Outcomes

Objective 2:

Increase public support and strengthen the constituency for WSPRC and the other agencies and entities involved in protecting Ice Age Flood features, and increase support for development of a complete network of interpretive opportunities related to the Ice Age Floods.

Associated Desired Outcomes:

2-1: An increase in the appreciation and personal value to visitors for Ice Age Floods features and associated interpretive opportunities provided at the parks, specifically, and in the surrounding areas, in general.

2-2: An increase in awareness of the identity of the WSPRC and other partners responsible for the interpretive opportunities at the parks and at other sites associated with the floods.

2-3: An increase in satisfaction by park users as a result of the information network in the park and surrounding area associated with the Ice Age Floods.

2-4: An increase in appreciation/approval of WSPRC due to providing high quality interpretive, recreational, and/or educational experiences associated with the Ice Age Floods.

2-5: An increase in awareness of and interest in the existing array of interpretive opportunities related to the Ice Age Floods, and the complementary nature of those opportunities, in Washington State.

2-6: An increase in awareness of and support for the planned interpretive and wayfinding network associated with the Ice Age Floods in Washington State.

Objective 3 and Associated Desired Outcomes

Objective 3:

A significant increase in the number of visitor days from target markets at park sites and at related sites specifically due to a desire to learn more about and/or see features associated with the Ice Age Floods.

Associated Desired Outcomes:

3-1: An increase in awareness on the part of the potential traveler of the array of desirable visitor opportunities associated with the Ice Age Floods at each park, in the surrounding area, in other WSPRC units, and in the rest of Washington State. This outcome can be accomplished in part by creating more opportunities (i.e. developing the interpretive opportunities recommended in the plan) and/or by a more effective wayfinding network to make it easier for people to plan and take trips to sites with Ice Age Floods features.

3-2: An increase in the perceived value of the interpretive experiences associated with the Ice Age Floods. This can be accomplished by increasing the array of opportunities and/or by increasing the quality of experiences desired by target markets.

3-3: An increase in the number of people from communities surrounding the park units using interpretive opportunities associated with the Ice Age Floods. This is an important market because a major reason people travel in general is to visit friends and relatives. Having residents take visitors to interpretive opportunities at park sites will increase word-of-mouth advertising, which can lead to greater visitation from target markets from outside the state. This can be accomplished by increasing the number of opportunities tailored to the interests of residents and the characteristics of that target market.

3-4: An increase in the number of sites associated with the Ice Age Floods visited on a single trip by individual travelers. This can be accomplished by increased visitor awareness of related interpretive opportunities in the area, increased motivation to visit those sites and a very effective trip planning and wayfinding network to help visitors plan and engage in an experience encompassing those opportunities. The motivation is accomplished in part through the linkage of stories through a true network. In essence, the approach is to interest visitors in the overall story, and then facilitate visits to a number of other related sites to "read" a different chapter of that story.

Glossary of Terms

The following terms are used in this document:

Gateway Community – A term used in the NPS study of the Ice Age Floods for communities on the edge of the flood region that are essentially 'gateways' into the region, and presumably into the interpretive experience associated with the event. We also use the term 'portal' for this type of community or site.

Hub Community or Hub Interpretive Site – Used to designate a site or community from which a person could explore the surrounding area to learn about the Ice Age Floods. Moses Lake is a good example of a Hub Community. Dry Falls Interpretive Center is a good example of a Hub Interpretive Site.

Information Network – The entire set of interpretive and wayfinding strategies that support a visitor's experience at a site or in an area.

Interpretive Network - The set of informal education strategies for an area, such as signs, exhibits and presentations. The content of these strategies focus on history, natural history and management of an area.

Media Prescription – This is the set of recommendations for interpretive and wayfinding strategies in the planning area, such as talks, presentations, exhibits, signs, kiosks, brochures, and interpretive trails. It typically identifies and describes the strategy, identifies the location for the strategy and provides a conceptual design to provide information to the designer.

Opportunity – This is the same as a strategy, but from a visitor's perspective. To the planner, it is a strategy for communicating; to the visitor, it is an opportunity to get information.

Strategy – A sign, brochure, presentation or some other technique for communicating information.

Universal Design Standards – Standards for the design of facilities, sites, products, services and environments that accommodate the widest range of potential users, including people with mobility, visual and auditory impairments and other special needs.

Wayfinding Network – The set of information strategies focused on orienting a person to an area and guiding that person to all sites and features in the area. It includes maps, directional signs, confidence markers along highways and labels identifying features and locations. This has also been called an orientation network.

The Ice Age Floods Network

Ice Age Floods Network

Introduction

The following philosophy was used as a set of guidelines for choosing strategies.

In general, people are more likely to believe what they read or hear if they can see supporting evidence at the same time. This has several implications:

- Artifacts, specimens, features and other sensory stimuli should be the focal point of the visitor experience. This is why visitors should be encouraged to explore the surrounding landscape and use the interpretive trails, where they can experience the 'real thing.'

- Information should be proximate to, subordinate to and complement these stimuli rather than trying to compete for the visitor's attention. That is the rationale behind using low-angled interpretive panels when interpreting outdoor features. In such instances, the panel is simply a label for the feature, and is designed and positioned to allow clear visual access to, and focus on, the feature.

- Indoor exhibits should strive to use real objects and should strive to engage as many senses as possible.

- Interpretive opportunities should focus on reinforcing stories already exemplified in the surrounding cultural and/or natural environment. In this project, the story has been determined – the Ice Age Floods. Consequently, the focus for interpretive opportunities is on features associated with or affected by that event, which includes subsequent cultural activities.

People have limited leisure time and unlimited opportunities to spend it, so they must make decisions. People make those decisions on the basis of effort (cost) and reward (benefit). In other words, "What is this activity going to cost in terms of time, money, physical and mental effort, etc.?" compared with, "What benefits am I going to get out of participating?" People tend to determine the cost-benefit ratio for their options, and then pick the options with the best ratio. This also has several implications when setting up an information network:

- One focus of the design of an information network should be to lower effort through effective wayfinding; another focus should be to increase reward through addition of quality interpretive opportunities, with the overall result being a more favorable ratio of reward to effort for the network as a whole, and hopefully, more use. This is especially important if one desired outcome is for visitors to spend more time (cost) and energy (cost) to use the interpretive trails or explore the area around the parks, which is where visitors can really 'see' the story that is being told.

- In addition to addressing the reward/effort ratio for the experience as a whole, the interpretive opportunities themselves must be perceived to have a good reward to effort ratio. If an opportunity is perceived to have a poor ratio for whatever reason—hard to read, hard to understand, boring subject, technical headings, small text, or any of a myriad of other factors—the chances of it being used are reduced.

People are receptive to different types of information at different places in the continuum of their experience. For example, at the beginning of a visitor experience at a site or area, visitors are typically interested first in wayfinding information. They are more likely to be interested in interpretive information once they are comfortable in the environment. Consequently, the network should be designed based on visitor flow so visitors are more likely to encounter wayfinding information first. Based in part on this concept, effective communication networks often contain the following types of components:

- Wayfinding Information:
  This is information that allows a visitor to function in your environment, and includes a listing and location of opportunities and activities, location of restrooms and other amenities, and locations for more information. A map is a basic and common wayfinding device. Such information is a critical element because feeling comfortable in an unfamiliar environment is essential in order to be receptive to interpretive information. Since wayfinding is a need, it must be offered at the beginning of a visitor's experience in such a way that it is easily accessible to all visitors, whether the site or facility is crowded or not. In this case, wayfinding has to be offered for any given site first. However, since one goal of the effort is to motivate visitors to explore the surrounding environment and visit other State Park sites associated with the Ice Age Floods, wayfinding information for the area must also be available. In other words, a visit to a park is not just the beginning of an experience at that park; it may be the beginning of an extended experience encompassing a wide variety of sites both within the WSPRC system and outside that system.

- Interpretive Information:
  This is information that helps the visitor understand the messages you wish to communicate. A typical interpretive network consists of the following components:

    - Grabbers:
      These are easily accessible, high reward strategies that are intended to grab a visitor's attention, pique curiosity, and attract the visitor into other, higher-effort strategies. For example, table teasers in restaurants in Moses Lake should grab a visitor's attention and entice him or her to travel up the Coulee Corridor Scenic Byway and visit Lake Lenore Caves, Dry Falls, and points beyond. As another example, every interpretive site in the network should contain grabbers marketing related interpretive experiences at other sites in the network.

    - Thematic Orientation or Overview:
      These opportunities function like the executive summary in reports—they give the visitor the big picture so the details will make sense. Thematic overview usually occurs just after wayfinding, and is critical to the overall effectiveness of the communication effort because it is an initial organizer for all subsequent information. Thematic overview should be located in the place in the interpretive experience with the maximum number of participants at a single place, so it should also communicate the key themes so visitors will understand the basic messages even if they do not visit every opportunity. In this project, some level of thematic overview will be necessary at each site that offers interpretive information; otherwise it will be difficult to place the story at that site in the larger context of the Ice Age Floods. For example, talking about the floodwaters emptying into the Pacific with their load of sediment at Cape Disappointment will be difficult to understand without understanding the magnitude and pathway of the flood, which would help explain why it could carry such a large amount of sediment.

    - Holders (Detail):
      These are higher effort, often less visible opportunities that provide the detail in an interpretive network. In this project, the interpretive trails are good examples of holders.

If you put these concepts together, then overlay them on a physical landscape, the result is a network with grabbers in prominent places to attract users into the information network and to different sites within the network; opportunities that provide wayfinding and thematic overview located in easily accessible locations at the beginning of the visitor experience – at whatever site that experience begins; and the meat of the interpretive experience, the detail, concentrated in site-specific interpretive opportunities. That is the philosophy used to develop the concept for the network of interpretive and wayfinding opportunities for the Ice Age Floods in the Washington State Parks included in this project.

The following sections contain separate overviews of the wayfinding and interpretive networks and a description of the strategies being recommended for each.

Wayfinding Network

Concept

In this wayfinding and interpretive network, story points are those sites where the story of the Ice Age Floods can be told because of the presence of features, such as coulees, erratics, and scabland features. The role of interpretive strategies is to tell that story. The role of wayfinding strategies is to guide people to the story points so the story can be told. To do so, the wayfinding network must extend from the story sites to starting points – places where the target audiences are starting their experience physically and/or intellectually, such as homes, cities and towns, lodging establishments and rest areas.

With than in mind, the wayfinding network must include strategies at starting points to make people aware of the interpretive opportunity, and then guide them to a story site. The network must also then guide them from that story site to the next one, and the next and the next. To create such a network, a variety of non-fixed opportunities must be developed as a follow-up to fixed opportunities. The fixed opportunities, such as regional orientation panels, make people aware of nearby story sites within the context of the entire network of sites. The non-fixed opportunities, such as maps, guide them to the site. At the site, fixed wayfinding strategies make visitors aware of other sites and once again, non-fixed strategies guide them. The basic system is supported by a system of confidence markers along highway access routes and identification signs at sites. The system is further enhanced by other strategies to reach people, such as web sites, guide books, and exhibits in off-site visitor centers.

The next section contains a description of the strategies we recommend for a complete wayfinding network. Following feedback on this submittal, conceptual design and cost range estimates will be prepared for those strategies that can be implemented by the WSPRC.

Wayfinding Strategies

The following list of strategies are specifically for the wayfinding network for the Ice Age Floods in Washington State Parks and are primarily for locations outside those parks. Once visitors have arrived, the wayfinding network is supported by the general park wayfinding network that includes site orientation panels, park map/brochures, identification labels and directional signage.

Wayfinding Sign System Components

- Primary Gateways

  This sign type is essentially a strategy to raise awareness that travelers are entering a unique and intriguing geomorphologic region. It is designed to be visible and useful to motorists, establish a visual foundation (image) for the rest of the Ice Age Floods network of sites and interpretive opportunities, and welcome travelers to the 'Pathway of the Ice Age Floods.' Although the image and wording on the signs is important, the structure is a key to creating an iconic portal piece. One possibility is to develop the structure out of columnar basalt, or fake basalt.

  The Primary Gateway would be located on major highways entering the flood area. Ideally, the panel would then direct travelers to a nearby site offering interpretive and/or wayfinding opportunities related to the Ice Age Floods. For example, a Primary Gateway along I-90 eastbound located about 1 mile from the turn-off to Ginkgo Petrified Forest could direct travelers to that site for more information.

- Secondary Gateways
  This sign type is similar to the Primary Gateway but smaller. It will be located along secondary access points into the Ice Age Floods region.

- Ice Age Floods Regional Orientation Kiosk – parks version
  The intent of this sign type is to make travelers aware that they are within a unique geomorphologic region, aware of the extensive network of Ice Age Floods interpretive opportunities in the State Parks, and orient them to the region in relation to interpretive opportunities in state parks related to the Ice Age Floods. Fixed orientation strategies can function effectively as tools for raising awareness and orienting people to surround ings, but they do not function effectively as wayfinding strategies because people cannot remember all the information on the map. They prefer to have such information available at their fingertips. That is why the panel has to be followed up with a map/brochure.

  This sign type features a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region in which the panel is located, with regional opportunities highlighted and described. Additionally, the flood area will be shaded so people can tell if they are within the flood boundaries, Washington State Parks sites would be emphasized. Ideally, this would have a brochure holder for distributing the Regional Ice Age Floods Orientation Map/Brochure. With the exception of regional orientation panels at Bridgeport and Fort Okanogan, the header could read, "You are inthe pathway of the Ice Age Floods." The appropriate regional panel would be located in every unit in the study. At this point, we are recommending regional panels associated with the following regions:

    - Lower Columbia River Region
      This includes Maryhill, Columbia Hills, Beacon Rock and Cape Disappointment

    - Tri-Cities Area
      This includes Sacajawea, Palouse Falls, Lyons Ferry and the lower part of the Columbia Plateau Trail

    - Spokane Area
      This includes Riverside, Centennial Trail and the upper part of the Columbia Plateau Trail

    - Wentachee/Moses Lake Area
      This includes all the rest of the parks in the study.

- Ice Age Floods Regional Orientation Kiosk – off-site version
  This sign type is similar to the parks version, but it has a sidebar providing a brief explanation of the floods with an invitation to visit the nearest State Park to learn more.

- Ice Age Floods Regional Orientation Map/Brochure
  The function of this strategy is to guide travelers to the story sites. This publication is similar to the regional orientation panel in that it shows the entire network, perhaps in an inset, but focuses on a region. Regions would correspond to the regional division on the signs. Ideally, it would be free so it could be distributed to everyone.

- Floodpath Highway Markers
  These are similar to confidence markers. They are located along auto tour routes to reassure travelers that they are going the right way.

- Flood Pathway Trail Marker
  This is a similar marker to be placed along trails such as the Columbia Plateau Trail.

- Ice Age Floods Site Identifier
  This is a small panel that includes the logo and the words 'Ice Age Floods site.' It will be included at every park in the project and should be placed in conjunction with the lable identifying the park. The panel will serve two purposes. First, it will identify sites that contain interpretive opportunities related to the Ice Age Floods. Second, for travelers who recognize the identifier and know what it means, it has the potential to send/reinforce the message that the flood event covered a huge area. For example, imagine a visitor to Cape Disappointment who encounters the sign and understands what it means, who then encounters the same identifier at Riverside State Park in Spokane, or in Missoula, or at Sacagawea State Park, or at Wenatchee Confluence, or better yet, at all of those locations. In that scenario, the identifier becomes a powerful device to communicate the breadth of the floods.

- Ice Age Floods Web Site
  This should be dedicated to the Ice Age Floods and accessible through a number of links. It would contain links to all parks with interpretive opportunities and all other sites with such opportunities. It would contain suggestions for loop tours, itineraries, and other trip planning information. In a later phase, the web site could be used for virtual interpretation – illustrating the flood path and impact through simulation and providing interpretation in a variety of languages. Web access could be provided at State Park facilities and local or regional visitor information centers.

- A GPS-driven auto tour system
  The technology is probably available now, but if a voice can tell you to turn left at the next corner after you tell it where you want to go, it should be able to tell you that a granite erratic is coming up on your left and then tell you about the origin of that erratic. Obviously this would only work in cars equipped with this kind of technology, and adapting it for this type of use may be a bit in the future, but it is important to keep in mind that this network will take years to develop, and we want it to be cutting edge, so we need to consider what kind of technology might be available in the future.

- Tour guidebooks
  The following non-fixed strategies recommended for the network will contain both wayfinding and interpretive information.
    - Regional Auto Tour Guidebooks
    - Discovery Guide to the Ice Age Floods in Washington State Parks

  These are described in the section on Interpretive Strategies.

Themes and Storylines

Introduction

Themes and topics are not the same. A topic is a subject, such as 'the Ice Age Floods.' A theme is a statement or message about the subject, such as 'The Ice Age Floods had a significant impact on cultural use of the Pacific Northwest and on your life today.' Themes are the core of the stories that are told. In fact, stories are selected in order to communicate themes. Consequently, themes are determined before selecting and developing the interpretive strategies.

One method for selecting themes is to determine what stories are already being told in the surrounding natural/cultural landscape, and then translate those stories, through interpretation, so visitors understand.

According to research, people tend to remember overarching themes or concepts rather than the facts that are used to communicate those concepts. They still do not typically hold on to more than about three major concepts after an interpretive effort, if that many. Therefore, our goal is to select a few overarching themes to use as organizers for Sub-Themes and supporting stories.

Themes, Sub-Themes and Stories

The following overarching themes include those related to the topic, which are those concepts we want park visitors to understand about the Ice Age Floods, one theme related to marketing, and a more general concept that we want visitors to take with them upon departure.

Theme

> *The landscape you see is the product of many forces working over a long period of time. The Ice Age Floods were the most recent major agents of change, sculpting the landscape on a massive scale over a rapid period of time to shape much of what we see today.*

The intent is to focus on the magnitude and widespread extent of the impact of the floods while reinforcing the basic concept that the landscape is dynamic, changing constantly as a result of different forces, some of which act slowly and some of which act rapidly. It also reinforces the basic concept of linkages – nothing happens in a vacuum so everything is influenced by the past and affects the future, even in geomorphology.

Possible Sub-Themes and supporting stories include the following:

- Sub-Theme:
  A variety of forces combined over time to set the stage for and influence the Ice Age Floods.

    - Supporting Stories:
      The storylines to support this Sub-Theme focus on geomorphologic forces and their impact.

This includes:
Plate tectonics causing land masses to move together to form larger land masses, and causing uplift – a major force in the shaping of the Columbia Gorge; Cascade volcanoes building the mountain chain; Columbia River basalt flows helping to form the vast Columbia River Plateau, and the continental ice sheet supplying water for the floods as well as influencing the pathway.

- Sub-Theme:
  The extent and type of impact of the Ice Age Floods was determined by past events.

    - Supporting Stories:
      The storylines to support this Sub-Theme focus on geomorphologic forces and their impact.

      This includes:
      Plate tectonics causing land masses to move together to form larger land masses, and causing uplift – a major force in the shaping of the Columbia Gorge; Cascade volcanoes building the mountain chain; Columbia River basalt flows helping to form the vast Columbia River Plateau, and the continental ice sheet supplying water for the floods as well as influencing the pathway.

- Sub-Theme:
  The extent and type of impact of the Ice Age Floods was determined by past events.

    - Supporting Stories:
      The storylines to support this Sub-Theme focus on other geomorphologic forces and their impact on the floods.

      This includes:
      The tilt of the Columbia River basalts near Spokane caused the water to pick up velocity, contributing to the erosive force and subsequent formation of scablands. The columnar basalt that resulted from the Columbia River basalt flows was easily eroded by flood waters, which contributed to the formation of iconic features of the floods, such as Grand Coulee and Dry Falls. The Cascades Mountains, formed by plate tectonics and volcanic activity, formed a barrier that helped determine the course of the flood waters. The ice sheet created barriers to the flood waters, causing the formation of Grand Coulee and Moses Coulee.

- Sub-Theme:
  The Ice Age Floods had large-scale impact over a large area.

    - Supporting stories:
      The storylines to support this Sub-Theme focus on the impacts of the floods.

      This includes:
      The floods carving new landforms, such as the Grand Coulee and Palouse Falls and Canyon. The floods significantly altering existing landforms, such as turning parts of eastern Washington into scablands, dumping huge amounts of material in the Quincy Basin, and carving away rock to form the basalt cliffs along the Columbia River channel. The floods having impact in four states from Montana to the Pacific, and also affecting an area at least that large in the Pacific Ocean. The undersea area off the coast that received the eroded material from the floods is larger than the land area affected by Lake Missoula and the Ice Age Floods, and the length of the undersea flow is longer than the overall reach of the waters on the land.

Theme

The Ice Age Floods had a significant impact on cultural use of the Pacific Northwest and on your life today.

The focus of this theme is on the linkage between humans and the physical environment. The environment shapes human lifestyles by influencing how they use the land (geo-determinism). In turn, humans shape the environment. Possible Sub-Themes include the following:

Possible Sub-Themes include the following:

- Sub-Theme:
  The Ice Age Floods significantly influenced travel and trade routes. Since transportation routes are a key to cultural development in and use of an area, the floods had impacts still felt today.

    - Supporting stories:
      The storylines supporting this Sub-Theme focus on how the floods affected the distribution of human activity – including settlement – on the landscape.

      This includes the following stories:
      The formation of new travel and trade routes, such as the Grand Coulee, and the shaping of other routes to facilitate their use (travel routes influenced how tribal cultures interacted with each other through contact, trading, languages, and intermarriage); the distribution of key resources, including topsoil (determined hunting and gathering potential plus agricultural potential), water (including aquifers) and gravel (a key resource for road building), which determined travel and settlement patterns.

- Sub-Theme:
  The Ice Age Floods significantly affected the economies of the Pacific Northwest - past, present and future.

    - Supporting stories:
      The storylines supporting this Sub-Theme focus on the impact on agriculture, specifically, the re-distribution of soil determining what crops could be grown where and whether agriculture was even a possibility. It includes the wine growing industry of the Willamette Valley and Walla Walla Valley as well as other locations. The story could also include impact on tourism.

Theme

The composition and distribution of flora and fauna in the Pacific Northwest was affected significantly by the Ice Age Floods.

This is essentially an extension of the geo-determinism story to other biotic elements of the ecosystem. It allows a focus on the linkages between the biotic and physical environments and between different biotic components, such as wildlife and habitat.

Possible Sub-Themes include:

- Sub-Theme:
  The re-distribution of soil had significant impact on what plants could grow where, which in turn had significant impact on the presence and distribution of birds and wildlife that depended on those plants.

- Supporting stories:
  The storylines supporting this Sub-Theme focus first on species of flora that are growing or not growing in an area due to impact by the floods, and the consequent presence or absence of fauna that are tied to those species.

- Sub-Theme:
  The floods played a significant role in determining habitat for species of birds and wildlife.

  - Supporting stories:
    The storylines supporting this Sub-Theme focus on habitat formed in large part due to the floods.

    This would include:
    Cliffs used by raptors
    Wetlands and riparian areas used by birds and waterfowl
    Scablands that support less vegetation and cover and consequently less wildlife

Theme

The history of field research on the Ice Age Floods demonstrates how knowledge evolves over time, often through a combination of ideas and other advances in science.

Although the story of Bretz and his battle with the scientific world appears brutal, it is not atypical. It is an example of a classic Hegelian dialectic -- someone has a thesis, someone posits an antithesis, and the two sides struggle until a synthesis is reached. This process has repeated itself throughout human history and continues today. Consequently the focus should not be so much on the difficulty, but on the process and result because it sends the message that we may not have everything right and there are things left to discover, including new ways to look at old stories. This is a good message for children – our potential scientists of the future. Possible Sub-Themes include:

- Sub-Theme:
  The story of the Ice Age Floods evolved with input from a variety of sources.

  - Supporting stories:
    The storylines supporting this Sub-Theme certainly include Bretz and Pardee, but they also include the work of others who were looking at additional aspects of the story, such as the evidence of a giant lake in Montana.

- Sub-Theme:
  Other advances in knowledge were a key to the scientific community accepting this theory.

  - Supporting stories:
    The storylines supporting this Sub-Theme focus on the impact of technology, especially aerial and satellite photography, in the story of the evolution of understanding of this event.

Theme

The landscape contains many stories about cultural and natural history that can be 'read' if I learn how.

We want people, especially children, to become 'detectives of the landscape,' always looking to see what is there and what it might mean. Such seeds could lead to the sprouting of a passing interest or a life career in science. At a minimum, this experience should foster a stronger connection to the land, resources and a higher value because we become connected with quality of life through a pleasurable experience.

- Supporting stories:
  The storylines supporting this theme are numerous. All of the interpretive opportunities focus on reading the landscape – both cultural and natural. The story of Bretz is also about him reading a story in the landscap

Theme

Washington State Parks and the surrounding landscapes are fascinating places to visit and worth protecting as part of our state's heritage.

This is a marketing and support theme. We want people to support WSPRC and the best way to do that is to provide something they value. The more sites they visit and the more they enjoy experiences facilitated by the WSPRC, the more likely they are to support the agency. Possible Sub-Themes include the following:

- Sub-Theme:
  Natural and cultural resources are an important to my quality of life.

- Sub-Theme:
  Washington State Parks and Recreation Commission protects natural and cultural resources important to my quality of life.

- Sub-Theme:
  I can help protect these resources in part by supporting the WSPRC.

These messages are not communicated so much by telling specific stories as by providing a quality experience and making sure the participant knows who was responsible for that experience.

Interpretive Network

Overview

The Ice Age Floods covered a vast area of landscape from the Bitterroot Valley and present day Missoula, Montana through eastern Washington, the Columbia Gorge and as far south as Eugene, Oregon in the Willamette Valley and west to the Pacific Ocean. The best place to tell a story about an event that affected the landscape is where the visitor can 'see' what is being said, so in essence, the story of the Ice Age Floods is told in that entire landscape. With than in mind, the interpretive network must include opportunities for exploring that landscape, at least the landscape on public lands, regardless of jurisdiction. This can be accomplished by having nodes of fixed interpretive and wayfinding information combined with guidebooks, maps and other such strategies that enable a person to explore and learn about the surrounding environment.

That is the concept used in planning the interpretive network for the WSPRC sites. To create such a network, a variety of non-fixed opportunities must be developed as a follow-up to fixed opportunities. The fixed opportunities attract people, and excite them about the story and the non-fixed opportunities enable them to explore the story in a variety of locations within and outside the Washington State Parks.

The Washington State Parks are primarily potential nodes – sites with fixed interpretive and wayfinding strategies that can excite visitors about the story and get them started in what is hoped to be a never-ending exploration of that story both physically and educationally. However, because of the features in the park, visitation, location and other factors, different parks can function in different capacities within the Ice Age Floods interpretive network.

Some WSPRC units, such as Sun Lakes – Dry Falls, Steamboat, Palouse Falls, Columbia Hills and others, have a wide array of iconic type features related to the Ice Age Floods. Those sites can function as primary story sites – places where people can 'see' one or more key chapters of the story and have an in-depth and extensive interpretive experience. Because of high visitation, they can also function as key orientation sites. The combination creates a key node in the network. Other parks, such as Potholes and Wenatchee Confluence, do not contain the variety and/or iconic type features, but are at the nexus of numerous sites in close proximity with interpretable features, and have high visitation. Consequently, they can function effectively as distribution nodes where the combination of site-specific interpretive and wayfinding strategies are developed to excite people about the story, whet their appetite for more, and send them out to explore the surrounding landscape and visit other State Parks where they can get more of the story. Still other sites, such as Crown Point and Lake Lenore Caves, have significant features that can be used to tell part of the story, but are not necessarily effective at being a distribution node. They are essentially story sites.

The point is that each park in the system functions effectively as a specific part of the network, but not necessarily in a variety of capacities. The way in which it can function determines to a large extent the type and extent of strategies recommended for that unit. The map on the following page contains all sites within the project and the category in which it has been placed in relation to the interpretive and wayfinding networks. That is followed by the media prescription. The first part of the media prescription lists the general non-fixed strategies being considered, along with fixed strategies being considered that would be common to most if not all of the park units. That is followed by a section containing the recommendations for each park unit.

Map showing categorization of park units – to be completed for the final plan.

Interpretive Strategies

The following strategies are being recommended for this interpretive network. The non-fixed strategies and ones that will be used in most sites are described in this section. The other types of strategies are listed, but descriptions are included under the specific park(s) for which they are recommended. Note that these are strategies dedicated primarily to the Ice Age Floods. We have also recommended that several strategies in various parks, such as existing interpretive trails, trail guides and programs, incorporate Ice Age Floods interpretive information.

Non-Fixed Interpretive Strategies

- Table Teasers
  This strategy, typically in the form of laminated cards with photos and interpretive information or placemats, is intended to pique interest in visiting nearby sites in the area. This strategy would be available at dining tables in nearby lodging establishments and restaurants for guests to browse as they wait to be served.

- WSPRC Regional Tour Guides for the Ice Age Floods
  The exact area for each guide would have to be determined, but we currently envision one for the lower Columbia River area, the Tri-Cities area, the Spokane area, and the Wenatchee-Moses Lake area. Although each guide would focus on a region, an overview of opportunities in the other regions would be included. Washington State Parks would be highlighted as places to find additional information, places from which to start tours and key story points within the tours.

- WSPRC Discovery Guide to the Ice Age Floods
  This is essentially all the regional tour guides combined into one publication.

- Boater's Guides (or guides from the water)
  These are recommended for different parts of the Columbia and Snake, and also for the Coulee Lakes, Moses Lake and Potholes Reservoir.

- The Ice Age Floods Poster
  This poster uses a backdrop of a stylized aerial view of the flood area to pull out photos or other graphic elements depicting key sites and features associated with the event. Each would have a short text block describing the significance of the site or feature, and combined, they would tell an overview story of the story of the Ice Age Floods. This could be sold or given away.

- Sensory Treasure Hunt – Geomorphology Features
  This booklet or set of cards has pictures and descriptions of Ice Age Floods and other geologic features that children can look for and check off. This booklet will help to occupy children and families, and keep them interested and learning. A button or similar reward could be given to children who fill out the entire booklet. This strategy could be developed in conjunction with other nearby sites. The result would be a series of such activities, geared to different sites, offered in one product. Another possibility is to couple this with the concept of a "Passport to the Past" that allows kids to stamp their passport at different sites within the network. As suggested by Steve Wang (Interpretive Supervisor, WSPRC), the kids could have an extra incentive to visit the site because the very act of stamping their booklet could be with a specimen or artifact related to the story, such as an iceberg, a chunk of basalt, the tooth (reproduc tion) of a mammoth or big cat, or similar appropriate item.

- Ice Age Floods Features Identification Card
  This is a laminated card, similar to those used for flowers, birds, tropical fish and other wildlife, that allows a person to identify typical types of features associated with the floods and the basalt flows that preceded the floods. Such features as columnar basalt, potholes, coulees, erratics, ice-rafted erratics, bergmounds and other such features could be included. Ideally it would be a companion to a Discovery Guide for the Ice Age Floods that contained additional information about such features and where they can be seen.

- A GPS driven auto tour system
  This strategy is a part of the wayfinding network, but it can also be applied to the interpretive network. GPS technology makes cassette tapes obsolete. (Already there are a lot of automobiles being produced that have CD players, but not cassette tape players). As noted in the wayfinding section, if a voice can tell you to turn left at the next corner after you tell it where you want to go, it should be able to tell you that a granite erratic is coming up on your left and then tell you about the origin of that erratic. This technology will only work in newer vehicles. Adapting it for this type of use may be a bit in the future. However, this network will take years to develop, so we need to consider what kind of technology might be available in the future.

- Familiarization Tours
  Tours would be developed for local people associated with the tourism industry, including Chamber of Commerce staff, Welcome Center staff, lodging owners, camp ground operators, RV park operators, USFS and NPS personnel, tour operators, restaurant staff, service station staff and especially WSPRC staff. The tours would focus on making participants aware of what is offered at sites in a particular area so they are able to answer visitor questions and/or send visitors to places where they can get more information. Ideally, staff from Washington State Parks that are part of the interpretive network could participate in a tour of all other such parks, emphasizing the Ice Age Floods story and opportunities, so they would have good firsthand knowledge of the story and opportunities as background for answering questions. The logistical and wayfinding elements of these tours will be equally important as the technical geological information.

- Interpretive talks, walks, and evening programs
  These are described specifically in parks for which they are recommended. However, to assist the presenters, we recommend the following:

- Presenter's Kit
  This kit or trunk, depending on how many items it holds, contains a variety of strategies, objects, demonstration props and instructions, and specimens for use in giving talks in a park. It should also include the Personal Interpretation Manual for Interpreting the Ice Age Floods. This could also be used for giving talks in classrooms.

- Teacher's Packet for Field Trips
  The actual content would vary a bit from site to site, but it would include logistical information for planning the trip, pre-trip activities for students, post-trip activities for students, the sensory treasure hunt to be copied, and a map/brochure of the park.

- Personal Interpretation Manual for the Ice Age Floods
  The manual would be a comprehensive site-specific series of theme scripts and activities for presenting live interpretive programs at each Ice Age Floods park site. Designed for use in a 3-ring binder format, the scripts could be easily updated. Interpreters would reference the manual to fully develop the Ice Age Floods story at their site and avoid duplication of programs with other Ice Age Floods parks.

Fixed Interpretive Strategies

As noted previously, the strategies with descriptions are ones that occur in several parks. Other types of strategies used in the network are listed, but the descriptions are included in the sections specific to sites in the project.

- Ice Age Floods Thematic Overview Panel(s)
  This panel will be located at every site to provide context for site-specific interpretive panels focusing on the features at that site. This could have a brochure dispenser for the Ice Age Floods Map/Brochure.

- Interior Ice Age Floods Overview Exhibit
  This will be similar to the thematic overview panels, but be more extensive, perhaps with interactive elements. It would be located whenever an opportunity exists for an indoor interpretive exhibit, whether at a State Park or in another facility. Specific opportunities are currently limited to Dry Falls, Ginkgo Petrified Forest and possibly Sacajawea. If an interpretive center is built at Columbia Hills and/or a visitor center at Moses Lake, this strategy should be placed in those facilities. It is also possible it could be used at the Columbia Gorge Interpretive Center at Stevenson, WA.

- Ice Age Floods Height Finder
  This is a simple tube or pipe, set in stone or some other medium so it cannot be moved. One should be mounted at a height for adults and one for children. The point viewed through the tube should match the height of the flood waters. Surrounding hills or other features would be used as a backdrop for the view.

- Guided tours (van tours – Interpmobile)
  These are guided tours led by specialists, perhaps by members of the Ice Age Floods Institute.

- Ice Age Floods Features Playgrounds
  These are described specifically in parks for which they are recommended.

- Site-specific interpretive panels
  These are described specifically in parks for which they are recommended.

- Interpretive Trails
  These are described specifically in parks for which they are recommended.

- Audio Listening Posts
  These are described specifically in parks for which they are recommended.

- Interior Exhibits
  These are described specifically in parks for which they are recommended.

Specific Park Recommendations

Introduction

The following section contains the recommendations for each site in this study. The sites have been organized alphabetically by region to facilitate use by individual park and regional managers. The following information has been included for each site:

Overview

This is just a brief paragraph noting key aspects of the site in relation to interpreting the Ice Age Floods story.

Status

This identifies the site as a primary or secondary story site based on visible features, and primary or secondary wayfinding site based on location and visitation.

Recommended Changes to Layout and Infrastructure

This focuses on changes in layout and removal/addition of structures. For some parks there will be no recommendations; for parks like Palouse Falls, there may be a whole page of recommended changes.

Recommended Ice Age Floods Strategies

This includes site-specific interpretive and wayfinding strategies. The information on each will include a description and location. Conceptual design will occur in the next phase, after the strategies have been approved.

Additional Interpretive Opportunities

This is a listing and brief description of interpretive opportunities that could include some information on the Ice Age Floods but are not dedicated to that story. For example, several parks could benefit from an interpretive trail, but that trail should contain interpretation on a variety of stories based on the visuals available to interpret. In such cases, we would not recommend an interpretive trail dedicated to the Ice Age Floods and neither would we recommend a single sign in a location along such a route to interpret the event, but if an interpretive trail were being developed, the Ice Age Floods story should be included.

Comments

Just that – anything else we want to say about the park.

Southwest Region

Beacon Rock State Park

Overview

The Columbia Gorge is significant in terms of the Ice Age Floods. The Gorge was a bottleneck for the flood waters backing up a hydraulic lake beyond Wallula Gap. From the Gorge, the floods slowed down and dropped bedload, which is what the cities of Portland, Troutdale, Gresham and east, are built on. On the Washington side, a similar 11-mile long gravel bar formed behind Prune Hill. Its west end is what the Port of Vancouver is built on. In the process of passing through the narrow river canyon, the flood waters tore away at the columnar basalt, helping to create the cliffs faced with columnar basalt that dominate the Gorge. Beacon Rock is a volcanic plug, representing another force of change within the Gorge, that was probably exposed by flood waters passing around and over the top of this feature.

Status

Beacon Rock is a primary story site and a primary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster – Highway:

This set of panels is located in the restroom area at the east end of the park along the highway. The site is important because it is likely the most visited site in the park. Consequently, we want to use the opportunity to entice people to other interpretive opportunities, especially those in the new Day Use Area.

- Panel 1:

  This is a site-specific overview panel focusing on the geomorphologic formation of the area, including the volcanic activity that formed Beacon Rock and the Columbia River basalt flows, and the impact of the floods on this landscape.

- Panel 2:

  This is a Site Orientation Panel highlighting the additional interpretive and recreational opportunities in the Day Use Area.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Distribution Center:

The existing visitor center should have a smal section containing relevant literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Interpretive Panels – Day Use Area:

The park has a Day Use Area down by the river with an existing fully accessible interpretive trail We suggest the following modifications to the signage along the trail.

Add an overview panel or panels that provide the big picture for the stories told along the trail, which include geomorphology, EuroAmerican History, Lewis & Clark and Native American history. A thematic overview of the geomorphology story, including the Ice Age Floods, could be included. As an alternative, depending on how much you want to emphasize the Ice Age Floods, you could have a thematic overview panel dedicated to that story.

Consider re-orienting or re-locating the existing panel on the Ice Age Floods so Beacon Rock is clearly visible in the visual field in front of the panel. It is a good panel, but the impact can be increased if people are looking at the rock.
Add a panel along the trail when oriented toward the basalt cliffs with interpretation focusing on the erosive power and impact of the floods.
Add a panel along the trail oriented toward Beacon Rock (where it is clearly visible) that focuses on the formation of the plug as we see it today, including the role of the Ice Age Floods in that process.

- Ice Age Floods Regional Orientation Panel:

  This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs and opportunities. The kiosk with the panel should be sited near the restrooms in the campground, at the rest area on the highway and in the Day Use Area.

- Coming From the Depths Interpretive mini-trail:

  This is a series of labels, culminating in a brief interpretive panel, located along the stairs that access the top of Beacon Rock. Instead of telling people how high they are, the labels tell them how many feet underwater they still are. At the top is an interpretive panel that tells people how far beneath the surface of the floods they are at that point. It also includes an image of what the flood would have looked like approaching the gorge along with associated information on impacts of the floods visible from this point.

- Interpretive Talks:

  The new Day Use Area of the park is an excellent location for giving an interpretive talk on the Ice Age Floods because the view contains a variety of features that can be used to tell part of the story. If this were adopted as a regular interpretive opportunity, consideration should be given to developing a set of benches where people can sit while attending a talk.

Comments

At present the wayfinding and orientation system in the park is not very effective at attracting and guiding travelers to the new Day Use Area. Upgrading that system is a high priority in order to get the biggest bang for your buck in terms of visitation to the Day Use Area and use of the interpretive strategies.

Implementation Plan

An implementation plan identifying priority of the Beacon Rock strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Southwest Region

Cape Disappointment State Park

Ice Age Floods Significance

This park is adjacent to the point where the flood waters emptied into the Pacific Ocean, carrying with them as much as 99% of the material it scoured from the landscape. Some of that material has ended up as far away as offshore northern California. It is established that the undersea area that received the eroded material from the Floods is larger than the land area affected by Lake Missoula and the Floods, and the length of the undersea flow is longer than the overall reach of the waters on the land.

The area lacks the sculpted features such as basalt cliffs, scabland features and coulees that are prominent in other parts of the network, and that are effective in capturing and holding attention and in telling the story. Part of the reason may be because the water was moving slower through this area and with less volume, and it may be in part because the ocean level is about 300 feet higher today than it was during the Ice Age when the floods occurred. That means the shoreline was miles further to the west.

Regardless of the lack of landforms sculpted by the floods, the viewshed does contain two features associated with the event – the Columbia River and the Pacific Ocean, and specifically, the confluence of the two. Therefore, the story of the transport of materials should be the focal point, and the site for telling that story should be one with a clear view of the confluence. Other key points that have bearing include the fact that this is the end of the route for anyone traveling the flood path unless they were then to get in a boat and travel in the Pacific Ocean. The other is that this park and the interpretation in it are heavily geared toward cultural history, with a current emphasis on Lewis & Clark. As with Columbia Hills, we want to exercise caution in providing too many stories in the same place.

Status

Cape Disappointment is a secondary story site and secondary orientation site in the network.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Distribution Center:

The existing visitor center should have a small section containing relevant literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Because of limited space, it is important to give priority to those guides and auto tours that encompass the immediate area. The backdrop for that area should be designed so it stands out from the rest of the retail space because the overwhelming impression upon entering the retail space is that it is all focused on Lewis & Clark and cultural history. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

If possible, key items, especially guidebooks and tour brochures that encompass the Columbia Gorge, should be available in the park office store also.

Ice Age Floods Interior Exhibit:

This would be located in the upper level of the interpretive center against the window wall that looks out at the confluence of the Columbia and the Pacific. Such an exhibit would be appropriate in that location because the exhibits in the room cover a wide range of topics, including lighthouses, shipwrecks, natural history and native peoples. One exhibit currently against the window wall interprets how the coastline has changed with the building of the jetties. We suggest a similar exhibit but contrasting the coastline in the time of the Ice Age with now. In other words, the overlay would show land stretching out miles to the west. If possible, by pressing a button, the 'flood' event could be seen covering the area as it went towards the ocean, and then continuing out to cover parts of the ocean floor. If money were available, computerized graphics could show the flow of turbidity currents going south and north along the coastline. The final image would show both the land and ocean areas impacted by the floods. Follow-up information, including a thematic overview, would probably have to be delivered

in a publication form because of the limitations of space in that room. Note that the exhibit could be designed so it appears identical to the current exhibit on the changing coastline so it will fit in within the look of the exhibits in that room.

Interpretive Panel Cluster:

The cluster, with visual access to the confluence, would be located along the walkway currently being constructed at the base of the interpretive center.

- Panel 1:

  This is a thematic overview of the event to provide context for the site-specific story.

- Panel 2:

  This panel focuses on the scene at the mouth of the Columbia when the flood was going through.

- Panel 3:

  This panel focuses on the impact of the flood on the Pacific Ocean, specifically, the floor of the ocean and its inhabitants. This would include the fact that sediment ended up as far south as offshore northern California.

- Panel 4:

  This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Trained Bus Drivers:

Cape Disappointment operates an internal 18-passenger park shuttle in the summer season, with stops at interpretive sites, day-use areas and the campground. The drivers probably already receive some training so they can answer visitor questions, and may already have information on the Ice Age Floods. One key in this park, which does not have breathtaking visuals associated with the event, such as Grand Coulee, is to make people aware of the floods so they then take in the interpretation that is available and hopefully purchase a guidebook. In other words, we want to start people on their Ice Age Floods experience. Consequently, in addition to telling people about Lewis and Clark and other cultural stories, the bus drivers should introduce the story with some catchy "didjaknows" and then direct visitors to sources of additional information within the park. This is not to say that our only audience are the 'unaware.' Those who are following the pathway already know what this site represents, and we are recommending interpretive strategies relating to the impact on the ocean.

Additional Interpretive Opportunities

(there are no additional ones for this site).

Implementation Plan

An implementation plan identifying priority of the Cape Disappointment strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Bridgeport

Overview

This park is known for its "haystacks," which are clumps of basalt carried to this point by the ice sheet. Consequently, this is an excellent place to focus on the role of the lobes from the ice sheet in influencing the pathways of the Ice Age Floods.

Status

This site is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

To increase awareness of the interpretive panels by campers who might not typically walk up to the interpretive panel cluster, we suggest creating a connecting spur of trail from the upper parking area to the campground so campers could walk a loop trail. This trail could become an interpretive trail focusing on the ecology and geomorphology of the landscape.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster:

This cluster of 3 panels will be located in an area where a large chunk of basalt is clearly visible. There are several possible locations, including sites within the campground and adjacent to the boat ramp access road. We recommend a site at the head of the stairs that connect the upper parking area to the Day Use Area. The area has numerous large chunks of basalt and a clear view of the river (Rufus Woods Lake).

- Panel 1:

  This panel, oriented toward a large chunk of basalt along the access pathway to the Day Use Area, would use the basalt rock in the visual field to focus on the ice sheet that covered the area during the last Ice Age and how it affected the landscape, with emphasis on where the rocks came from and how they came to be located in the park and surrounding area.

- Panel 2:

  This panel, oriented toward the Columbia (Rufus Woods Lake) is the Ice Age Floods thematic overview panel, which includes the role of the lobes of ice from the ice sheet in influencing the pathways of the flood waters.

- Panel 3:

  This is an Ice Age Floods Regional Orientation panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Ice Age Ice Sheet Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the ice sheet if possible (this would have to be a point on the Cascades). A simple text panel should provide the height above the point where the person is standing and just ask the person to imagine what it would have been like. This may not be possible due to the lack of visual access to the Cascades (which depends on final placement of the interpretive panel cluster), but perhaps focusing on the highest point in the surrounding landscape and providing information on how far beneath the ice sheet that point was would have the same effect.

Personal Interpretation/Programs:

Within the array of programs offered in evening programs should be programs on the Ice Age Floods with emphasis on how the ice sheet influenced the pathways of the floods, and also with emphasis on how the ice sheet affected the topography and subsequent flora, fauna and human use of the area. Ideally the Ice Age Floods map/brochure would be distributed at the end of the program.

Permitting Considerations:

Because the proposed site of the interpretive panels would be located on the water's edge, the project may require a shoreline substantial development permit from Douglas County under the County's Shoreline Master Program. Public interpretive signs are typically either exempt, or are a permitted use, as they are consistent with the Shoreline Management Act's goals to provide public access and recreational opportunities to the public.

Additional Interpretive Opportunities

Interpretive Trail:

If a loop trail was constructed, as suggested in the recommended changes to the infrastructure, it could be developed as an interpretive trail with the ice sheets and Ice Age Flood stories told at one or more of the stops on the trail.

Comments

This site will be included in a regional auto tour both because we want people staying here to use the tour and because the 'haystacks' are intriguing features.

Implementation Plan

An implementation plan identifying priority of the Bridgeport strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

BRIDGEPORT / field note image in full version

Eastern Region

Columbia Hills State Park

Overview

This site was deeply inundated by the floods, and bears the marks of that inundation in the form of erosional features representative of scablands – the landscape typical of the bottom of a river that has been scoured by flowing water. But, the site is significant for many other reasons. First, it is situated on the eastern end of the Columbia Gorge, and therefore it has the potential to function as a portal into the Gorge for travelers going east, and a portal into central and eastern Washington for travelers going west. It is also the first of the sites in this project traveling from west to east where clear evidence of the flood exists. Given that it is easier to interest a visitor and tell them a story he or she can 'see' in the landscape, this site has the potential to become a key portal for visitors traveling to the east. Finally, it is a site with significant cultural artifacts (pictographs and petroglyphs).

Status

This site should be a primary story site and a primary orientation site.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Columbia Hills, significant modifications to the layout and infrastructure would increase the attraction and holding power of this site, thus increasing the potential as a destination attraction. The key recommendation is for an interpretive/visitor center. The following site recommendation is based on interpreting the Ice Age Floods, but it should be considered within the context of other goals and objectives for the park. Our contract focuses on recommendations for interpreting the Ice Age Floods so we are not addressing the complete interpretive picture at any park, including Columbia Hills. What this means is that the best location for an interpretive facility based on interpreting the Ice Age Floods may not be the best location for interpreting the Ice Age Floods, cultural history and natural history. Consequently, it is important to understand the limitations of our work and put our recommendations within the context of what else is going on or could happen at the park.

The preferred location for this facility is in the eastern end of the park, north of the highway on a bench above the highway with a good view of Horsethief Butte and the river. Note that this area is referred to as Crawford Oaks, and is linked to the trail system for the Dalles Mtn. Ranch. Note also that park personnel have considered this site, but have considered putting the facility adjacent to and at the same level as the highway. We are recommending that the facility be located on the bench, above the highway. If the facility is by the highway, it functions primarily as a visitor center – orienting people to the site and area and providing some interpretation. If it is on the bench above the highway, it can be a much better interpretive center – telling the story of the Ice Age Floods and other geomorphologic forces and events that shaped the area. Key advantages include the following:

- It can function well as a portal to the park and gorge for travelers coming from the East;
- It does avoid increasing use pressure in the developed part of the park;
- It does avoid an overload of interpretation. The lower area currently focuses on interpreting the cultural story with emphasis on Native American culture and on the Lewis and Clark expedition;
- Because of the elevation, it has a much better view of the surrounding area, which allows for good interpretation of the Ice Age Floods.

Note: The NPS study by Jones and Jones indicates that the Dalles (presumably the Columbia Gorge Discovery Center) should be a primary hub for the Ice Age Floods story. Given that the cost for the facility is $8 per person, and that the Ice Age Floods are only one small story told within the facility, we believe a facility at this site might function better as a key hub for the eventual network.

Recommended Ice Age Flood Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interior Exhibits:

These would be located in a new interpretive center and would focus on providing an overview of the flood event and specific information regarding impact in the area of the Columbia Gorge in general and the east side of the gorge specifically. Since many people will be traveling east to west, the impact of the floods on the gorge area should include the Portland-Vancouver area.

Note: The interpretive center should have exhibits on the Columbia River basalt flows, formation of the Cascades and other geomorphology related to the visuals in the viewshed. It should also have an exhibit focusing on geo-determinsim – how the environment influenced the way people used the area. This exhibit should be tied to the interpretive opportunities in the other part of the park.

Distribution Center:

The visitor center should have a small section containing regional and statewide literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods. Note also that the scope of this center depends on whether it is in the existing park office or a new facility.

Interpretive Panel Cluster – Lower Overlook:

This cluster of four panels is located in the same area as the Lewis & Clark panels. We recommend integrating the story of the Ice Age Floods, the pre-contact cultural history and the post-contact cultural history at this interpretive panel cluster. One possibility is to focus on the role of water throughout time. The following panels are recommended:

- Panel I:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific panel focusing on the impact of the floods in this area, with specific focus on the formation of the scabland features.

- Panel 3:

  This panel focuses on the impact of the floods on how the area was used by the humans. It could include the formation of flat benches that were used as camp or village sites; the exposing of columnar basalt that was used for pictographs and petroglyphs; and the difficulty in traveling along the river due to the formation of steep cliffs in places.

- Panel 4:

  This is the Ice Age Floods Regional Orientation Panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Interpretive Panel Cluster – Upper Overlook:

This cluster of three panels will be located in an upper overlook in the area identified as a possible location for an interpretive center.

- Panel I:

  This panel will be a thematic overview panel covering the story of the Ice Age Floods to provide context.

- Panel 2:

  This is a site-specific panel focusing on how the flood waters carved the canyon walls, the channel through which the highway is built and the scabland features in the viewshed.

- Panel 3:

  This panel focuses on the impact of the floods on flora, fauna and humans.

  Note that this should be at the beginning of the interpretive trail on Ice Age Floods impacts.

Interpretive Trail – Ice Age Floods Impacts:

This trail, located on the bench near the new interpretive center, would use the features in the viewshed to focus on the variety of impact of the Ice Age Floods and provide more specific information on the erosional process that formed the features. It will also focus on impacts on the biota.

Guided Walks:

Guided walks could be offered in several areas, including in the area now used for walks and talks focusing on Native Americans.

Interpretive Talks:

These could be offered in several places, including locations on the bench where we are recommending a new facility be located. In the development plan, one of the first phases could be to develop parking and also a place with benches on the upper bench where someone could give talks.

Note: No amphitheater is recommended because the campground currently only has 14 sites.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Columbia and Snake Rivers:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river. Note that this could be a stop for some of the sternwheelers.

Interpretive Trail – Horsethief Butte:

If the new parking area gets developed so access to the butte is easier and safer, we recommend developing a loop interpretive trail in the flat area between the parking and the butte. The interpretation should provide an overview of all key stories associated with the area and told in the landscape including cultural history and natural history. A site orientation panel should be located here also to then direct people to other areas of the park that have more interpretive opportunities.

Note: We do not recommend developing an interpretive trail until parking is improved.

Guided walks – cultural interpretation:

The story of the flood can be and should be worked into the personal interpretive tours of the petroglyphs and pictographs. It can be introduced by noting that history according to the Native Americans includes a great flood event. It can also include a focus on geo-determinism. At this site, the flood waters exposed the columnar basalt that was used for pictographs and petroglyphs.

Note: Park rangers and staff already include the stories of the Ice Age Floods in tours of the pictographs and when answering any other landscape/geology questions. They find that most visitors have only a vague concept of what really happened and often the assumption is that the gorge was created through a slow-steady erosion process. The surrounding landscape in the park, including the butte, and their ability to point out a high-water mark really make an impact.

Walking Trail with interpretation:

This trail would connect the lower viewpoint to the trail up Horsethief Butte to the upper viewpoint and eventually to the trails in the lower Dalles Mountain Ranch Area. Note that this will probably require an underpass to connect the north and south sides of the highway. Interpretive stops would focus on the geomorphology story that can be read in the landscape. Interpretation would be delivered by means of a brochure.

Implementation Plan

An implementation plan identifying priority of the Columbia Hills strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

COLUMBIA HILLS / field note image in full version

Eastern Region

Columbia Plateau Trail

Overview

This 130-mile trail on an old railroad right-of-way passes through the heart of scablands formed by the Ice Age Floods, which means a person using the trail has visual access to many features related to the Ice Age Floods and to the Columbia River basalt flows that set the stage for the impact of the floods. In areas around Cheney the flood waters slowed, dropping some bedload, including large boulders. In other areas, the flood waters scoured the landscape, leaving behind scabland that now has a thin layer of soil and sparse vegetation. The northern 23-miles of the trail has already been developed and plans exist to develop the entire trail. At present there are 4 trailheads, each with restrooms and an informational kiosk. The plan calls for 7 additional trailheads, a connector trail to Sacajawea State Park and a connector trail to Spokane. The plan also calls for a visitor center at Kahlotus. The trail is used by walkers, hikers, cyclists and equestrians, although some of the trail is closed to horses.

Status

Columbia Plateau Trail is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in structures at each trailhead near the interpretive panels on the floods. A simple text panel should provide the height above the river and the height above the point where the person is standing.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located either on the existing orientation kiosk or on an 'ice age floods' orientation kiosk that is designed to become symbolic with Ice Age Floods information. The kiosk should also contain orientation panels for the section of trail to either side of the trailhead and a bulletin board or other surface for putting up changeable information. A kiosk with the panel should be sited at every trailhead.

Going North and South Panels:

These panels highlight the section of trail to either side of the trailhead and identify key features the traveler should look for. It also provides brief interpretation. However, the intent is to motivate users to buy the users guide to that section of trail to really get the information on the Ice Age Floods and other stories.

Guided Ice Age Floods Bicycle Tours:

These tours cover a section of the trail with interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Guided Ice Age Floods Equestrian Tours:

These tours cover a section of the trail with interpretation focusing on the Ice Age Floods and related geomorphologic events and resulting features, and also on the impact of the floods on flora, fauna and human activity.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Columbia Plateau Trail Guide booklet to Section 1:

Given that this is a trail, and one that will eventually be of some length, the obvious strategy for interpretation is a guidebook to the trail that included trail logs, orientation information and interpretive information, including stories related to Ice Age Floods features. We do not see a separate guidebook for Ice Age Floods features, but rather a guide book to the trail with that information integrated with other interpretive information. Since this trail will be developed in sections, we suggest creating the guidebook in sections, and then putting all the sections together at the end to create the overall guidebook.

Implementation Plan

An implementation plan identifying priority of the Columbia Plateau Trail strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Crown Point Heritage Area

Overview

This park area is at a key point in the path of the floods – the point where the flood waters were forced out of the ancestral route of the Columbia River due to blockage by the ice sheet, resulting in the formation of the Grand Coulee. Crown Point is an excellent place to interpret the role of the ice sheets because the dam is blocking the river in about the same place as the ice sheet. In a sense, Grand Coulee dam is functioning as the ice lobe did, albeit on a much smaller scale, and the resulting body of water (Lake Roosevelt) is a miniature of glacial Lake Columbia. The combination provides a good starting point to explaining how and why the Grand Coulee was formed

Status

Crown Point is a primary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster:
This cluster of three panels would be located at the edge of the parking area oriented toward the upstream view of the Columbia.

- Panel 1:
  This is a thematic overview panel to set the context.
- Panel 2:
  This is a site-specific panel focusing on the ice sheet, the blocking of the Columbia, the formation of glacial Lake Columbia, and the formation of Grand Coulee when the flood waters were forced to find a different route.
- Panel 3:
  This is the Ice Age Floods Regional Orientation panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure. However, given the potential for vandalism at this site, we do not recommend the brochure holder.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Note: We considered a Low Power Radio here, but decided against it because we felt the cost would not justify the return. First, better technology is already available for transmitting information into vehicles; we just have to wait a few years until that technology is more common place. Second, a loop program has to be short so a listener never has to wait a long time for the beginning of the program so there is a very limited amount of information that can be put on the program. Third, this will be a major stop on all auto tours associated with the floods so those with such guidebooks will have more extensive information, with visuals, at their fingertips. Finally, we are not convinced that people will actually sit in the car, tune to the station and listen. It is more likely that people will get out of their vehicle to see the view.

Interpretive Talks:

The site is a great place to give an interpretive talk about the role of the ice sheets in influencing the route of the floods, and in the formation of Grand Coulee.

Comments

Crown Point will be on the regional auto tour.

Implementation Plan

An implementation plan identifying priority of the Crown Point strategy within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

CROWN POINT / field note image in full version

Eastern Region

Daroga State Park

Overview

Daroga is a good place to capture people's interest because it is a site of visitor concentration due to the campground and Day Use facilities. A large gravel bar on the west side of the river across and just downstream from the park is likely to be at least partially due to flood waters. Also, the flood waters, which were 1000 feet deep at this point, were an erosional force that helped shape the canyon walls. Finally, Earthquake Point is directly across the river.

Status

Daroga is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

No changes recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster or series:

These panels would be located along the edge of the concrete walkway in the Day Use Area. The area has a good view of the gravel bar across the river as well as the geologic features on the opposite bank.

- Panel 1:

  This panel is a thematic overview of the Ice Age Floods.

- Panel 2:

  This panel, oriented across the river to the gravel bar and canyon walls, focuses on impacts of the floods on the landscape, including how the bar was formed by water slowing down and dropping bedload, and how the floods tore away the sides of the canyon.

- Panel 3:

  This is an Ice Age Floods Regional Orientation panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

  Note: The walkway could have additional panels relating to cultural use of the river and also to other geomorphologic events and forces that shaped the area, such as earthquakes, volcanic activity, erosion by the Columbia, and the ice sheets.

Ice Age Floods Height Finder

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Evening Programs:

At this time there is no amphitheater. However, the park has some conveniently sloped grassy hillsides in the camping area that could be used for evening programs. The Ice Age Floods Regional Orientation Map/Brochurecould be distributed at the end of programs that focused on that event.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people on the Columbia, including the stretch of river above and below Rocky Reach Dam. Interpretation would include features related to the Ice Age

Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Comments

Although not necessarily a key site in terms of interpreting the Ice Age Floods, the location in relation to the Columbia Plateau, margin of the ice sheets, Ice Age Floods and Cascade Mountains create an opportunity to focus on different geomorphologic forces and events that shaped the area.

Although an amphitheater is not critical to Ice Age Floods interpretation, it would be useful for presenting evening programs on the topic.

This site will be on a regional auto tour for the Ice Age Floods.

Implementation Plan

An implementation plan identifying priority of the Daroga strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Fort Okanogan State Park

Overview

This is a significant site in terms of the EuroAmerican cultural history of the Pacific Northwest in that it was the first permanent settlement in the interior. In terms of the Ice Age Floods, the site was likely covered by ice during the floods since a lobe of the ice sheet blocked the Columbia upriver, sending the flood waters down Moses Coulee and Grand Coulee. This view is consistent with the maps showing that the extent of the floods does not reach this site and evidently did not flow along this part of the Columbia River. With that in mind, two approaches to introducing the ice age floods seem most appropriate. The first is to focus on the ice sheets and how thick they were at this site and follow-up with the question, "what would have happened to the Columbia River if the valley were blocked by ice? The answer is that it would have created a lake during normal run-off, and would have been forced elsewhere during the floods. The second is to focus on geo-determinism, the role of the geography – which is influenced in part by events such as the ice sheets and ice age floods – in how humans use an area.

Status

This is a secondary story point for the Ice Age Floods interpretive network and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

Develop the access trail to the viewpoint that currently has the interpretive opportunity into an ADA accessible trail.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster or series:

Ideally this cluster of three panels would be located at the site of the current panel focusing on the locations of the two forts. This is the only site currently within the footprint and near the building and parking with a good view up and down river.

- Panel 1:

  A thematic overview panel focusing on the story of the Ice Age Floods.

- Panel 2:

  A site-specific panel focusing on the role of the ice sheet in general and the Okanogan lobe specifically in influencing the pathway of the floods, and role of the ice sheets in shaping the area surrounding the site.

- Panel 3:

  A panel focusing on the impact of the ice sheet on the use of the area by humans through time (geo-determinism).

  Note: Additional panels on the forts could be included in this cluster.

Ice Age Floods Height Finder

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the ice sheet if possible (this would have to be a point on the Cascades). A simple text panel should provide the height above the point where the person is standing and just ask the person to imagine what it would have been like.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. It will be located in an orientation kiosk located along the margin of the parking area near the facility. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure

Note: This structure should also contain a site orientation panel and a place for posting temporary information, such as schedules for interpretive tours of the center.

Interior Overview Exhibit:

An interior temporary overview exhibit would make people aware of the Ice Age Floods and ice sheets and be a motivator for purchase of non-fixed strategies such as auto tours and publications for exploring and discovering floods features. The exhibit should include a map of the surrounding area with key features and stops along highway routes identified. Emphasis should be on what people can see relating to the ice sheets and Ice Age Floods on whatever route they are traveling from this site. Ideally, the exhibit would tie to a regional auto tour that includes the site.

Distribution Center:

The visitor center should have a small section containing regional literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Comments

This site will be included in a regional auto tour.

Implementation Plan

An implementation plan identifying priority of the Fort Okanogan strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

FORT OKANOGAN / field note image in full version

Eastern Region

Ginkgo Petrified Forest

Overview

Ginkgo Petrified Forest is a relatively significant site in terms of the Ice Age Floods Interpretive Network. The site contains or has good visual access to a lot of features associated with the Ice Age Floods, including ice-rafted erratics, bergmounds, and cliffs of columnar basalt sculpted by flood waters. The park is currently best known for petrified wood, which is a related story in that the Columbia River basalt flows – a key to features formed by the Ice Age Floods - played a role in forming the deposits of petrified wood. The features visible from the interpretive center – the sheared off cliffs showing the underlying layers of Columbia River basalt flows, create a good opportunity to focus on the story of the Ice Age Floods and the role of the basalt flows in creating the opportunity for the flood waters to carve the features that are visible today. The bergmounds and ice-rafted erratics, both slackwater features, create the opportunity to tell the story of the role of the depositional impacts of the floods. The other important factor is that the site, especially the interpretive center, receives very high visitation in part because it is just off Interstate 90.

Status

Ginkgo will be a primary story site and a primary orientation site.

Recommended Changes to Layout and Infrastructure

The existing interpretive trail needs to be upgraded.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panels and associated audio listening posts:

This set of panels is located along the rock wall behind the interpretive center.

- Panel 1:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific panel focusing on the Columbia River Basalt flows and their impact on the surrounding topography.

- Panel 3:

  This is a site-specific interpretive panel focusing on the role of the flood waters in shearing off the basalt to form the cliffs in the view. It should be clear after reading panels 2 and 3 that it was the combination of basalt and the floods that produced the iconic features we associate with the floods.

- Panel 4:

  This panel focuses downstream, noting that narrow points in the topography caused the water to back up, which resulted in depositional features such as bergmounds and ice-rafted erratics. The panel should include information on where the visitor can go in the park to see these features.

Audio Listening Post:
This would provide the same story as on the interpretive panels, but would use sound effects when possible, such as the sound of a flood coming.

Note: The area should have another exterior panel focusing on the formation of the petrified wood, and the role of the basalt flows in the process.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Interpretive Trail – Existing:

We recommend re-developing the existing trail to focus on climate change using the contrast between the existing vegetation and the species of trees that are petrified, the impact of slackwa-

ter deposits related to the Ice Age Floods using ice-rafted erratics and bergmounds, and the role of the Columbia River Basalt flows in the geomorphology, flora and fauna of the area. Evidently, basalt flows knocked over the trees (which is why they are all pointing the same direction) and covered them, thus setting up the potential for pertification. The basalt flows were also important in the eventual formation of iconic features associated with the Ice Age Floods, but that story is told better at the interpretive center where visitors can see the basalt cliffs across the river. The trail could access and interpret a point that marks the high water mark of the floods.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs in the amphitheater. A kiosk with the panel should be sited at the interpretive center and at the parking area for the existing interpretive trail.

Interior Exhibits:

The interpretive center should have a major exhibit providing an overview of the Ice Age Floods. An associated exhibit should provide a visual menu of key interpretive sites associated with the floods in the surrounding area..

Distribution Center:

The visitor center should have a section containing relevant literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Guided Walks:

Guided walks could be offered in several areas, including Iceberg Pass and on the existing interpretive trail.

Interpretive Talks:

These could be offered at the center because the area has visual access to a variety of features that could be used tell different parts of the story.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Interpretive Trail – Interpretive Center:

This loop trail, located in the area just east of the interpretive center, focuses on interpreting a number of different topics, including the Ice Age Floods. The initial focal point, due in part to audience expectations, will be on Ginkgos and other species of flora that occupied the area and the climate at the time. That can then be used to contrast with the flora now as a lead in to the concept of climate change over time. Other topics such as basalt flows and the Ice Age Floods can be interpreted, but from the viewpoint of how those events affected the flora and associated fauna of the area.

Implementation Plan

An implementation plan identifying priority of the Ginkgo Petrified Forest strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Lincoln Rock State Park

Overview

Lincoln Rock is a good place to capture people's interest because it is a site of visitor concentration because of the campground and Day Use facilities. It does have some captivating geologic features including Lincoln Rock across the river and Turtle Rock upstream. Turtle Rock is a landslide feature that probably preceded the floods.

Status

Lincoln Rock is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

No changes recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Evening programs should include programs focusing on the Ice Age Floods. TheIce Age Floods Regional Orientation Map/Brochure should be distributed at the conclusion of the program. If possible, guidebooks could be sold also.

Interpretive Panel Cluster:

This cluster of three panels is located on the point of land jutting into the river at the Day Use Area.

- Panel 1:

  This panel is the thematic overview panel of the Ice Age Floods.

- Panel 2:

  This is a site-specific panel focusing on the impacts of the floods in this area with emphasis on those impacts visible from this site, which are the canyon walls on the west side of the river.

- Panel 3:

  This panel, oriented toward Turtle Rock, focuses on the key geomorphologic forces and events that have shaped the area.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs in the amphitheater. The kiosk should be sited near the existing concession area in the Day Use Area. Note that the kiosk should have some type of visual clearly identifying it as having Ice Age Flood information so people who view the interpretive panel cluster will know that additional information is available at this point.

Distribution Center:

This site does not have a visitor center and we are not proposing one for the park, but it does appear to have a concession facility in the Day Use Area. That could be used to distribute key interpretive literature, such as auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods. Other interpretive materials could also be sold, such as guides to wildflowers or geology tours of the area.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people on the Columbia, including the stretch of river above and below Rocky Reach Dam. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

A Geomorphology Features Playground:

This would use features in miniature accompanied by interpretive panels. Features could include Turtle Rock, Lincoln Rock, columnar basalt and other features reflecting key geomorphologic events, including the Ice Age Floods. Associated interpretive panels would interpret the features and provide an opportunity for parents to ask questions of their children such as, "what would live in this feature?" or, "how was this feature formed?" This feature should be located in the Day Use Area near the restrooms.

Interpretive Trail:

Lincoln Rock currently has a trail atop a berm overlooking the river that runs along the margin of the camping area. Interpretive information could be tied to sites and features along the trail. The interpretation could cover a variety of topics, including the Ice Age Floods. Note: We are not recommending developing an interpretive trail dedicated to the Ice Age Floods, but are simply noting that an interpretive trail in this location may reach a lot of people and could include some Ice Age Floods interpretation.

Comments

Lincoln Rock will be on the regional auto tour because it is a key starting point for people staying here.

Implementation Plan

An implementation plan identifying priority of the Lincoln Rock strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Lincoln Rock State Park Map

site plan image in full version

Eastern Region

Maryhill State Park

Overview

This site would have been inundated during the deepest Ice Age Floods. But it does not exhibit the scabland features that dominate Columbia Hills State Park. The key opportunities relate to the Columbia River and the basalt cliffs across the river. The cliffs of columnar basalt were reshaped when the Ice Age Floods rinsed off the landscape up to hundreds of feet high. The demarcation line is discernible if a person knows what to look for. The Columbia River represents the pathway of the floodwaters.

Status

Maryhill State Park is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

The long-term plan for interpretation in State Parks calls for personal interpretation in all units. This site currently does not have an amphitheater or an area conducive to giving evening programs. Consequently, such a space should be developed. However, we do not consider this to be a high priority in terms of interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Develop an amphitheater and put on evening programs, which should include programs focusing on the Ice Age Floods. The Ice Age Floods Orientation Map/Brochure should be distributed at the conclusion of the program. If possible, guidebooks could be sold also.

Interpretive Panel Cluster:

This set of three panels is located near the restrooms in the Day Use Area, overlooking the river. The site is easily accessible and has a good view across the river.

- Panel 1:

  This is a thematic overview panel giving the overall story of the Ice Age Floods to provide context.

- Panel 2:

  This is a site-specific interpretive panel focusing on the role of the flood waters in forming the basalt cliffs visible from the panel.

- Panel 3:

  This is the Ice Age Floods Regional Orientation panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs. Orientation kiosks should be sited near the restrooms in the RV and tent camping areas.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Distribution Center:

This site does not have a visitor center and we are not proposing one for the park. However, a county-run visitor information facility is located at the entrance to the park. It might be possible through a cooperative agreement to distribute regional Ice Age Floods literature from this facility.

Boaters Guide to the Columbia River:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river.

Implementation Plan

An implementation plan identifying priority of the Maryhill strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Maryhill State Park Map

site plan image in full version

Eastern Region

Palouse Falls State Park

Overview

The Ice Age Floods had a number of impacts on topographic features, including shaping existing features and creating new ones. Palouse Falls and the channel up and downstream from the falls are examples of new features created by the floods. The Palouse River used to flow down what is now Washtucna Coulee, but the floodwaters carved a new route and the spectacular canyon that heads at Palouse Falls. This feature is one of the icons of the Ice Age Floods, and arguably one of the top 5 topographic features associated with the event. It is probably one of the two most significant sites under the jurisdiction of the WSPRC.

Status

Palouse Falls is a primary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Palouse Falls, significant modifications to the layout and infrastructure would increase the attraction and holding power of this site, thus increasing the potential as a destination attraction. We recommend the following changes:

Priority 1

Series of Pavilions:

Develop a series of 4 open air pavilions with roofs along the edge of the Palouse Canyon linked by a walking trail. The pavilions should be designed and located to reflect the step-like topography of the basalt layers in the canyon walls. The approximate locations are depicted on the site plan. Pavilion 1, immediately adjacent to the existing parking area, replaces the existing viewpoint. It will contain interpretive panels and will be accessed via a fully accessible trail from the parking area. Pavilion 2, located between the existing lower viewpoint and existing Vista House, in a location so it is not visible from the Vista House, will be designed for giving presentations or for visitors to simply contemplate the view. Pavilion 3, to replace the existing Vista House, will also contain interpretive panels. Pavilion 4 will contain places to sit for people to contemplate the scenery and/or have the view interpreted through guide books or brochures. .

Interpretive Trail:

Construct a fully accessible interpretive trail from the lower parking area up to Pavilion 3. Interpretation along the trail is described in the section on interpretive strategies.

Orientation Kiosk:

This would replace the existing kiosk located adjacent to the parking area. It would hold the Ice Age Floods regional orientation panel, the site orientation panel and a bulletin board or other surface for posting information on upcoming programs.

Priority 2

Walking Trail with Pavilion:

Upgrade the trail accessing the viewpoint overlooking the 'castle.' This is not an interpretive trail although interpretation of the features could be provided in publications. At the viewpoint, construct another pavilion (#5) designed so it harmonizes with the landscape. The pavilion should have places for people to sit and view the landscape.

Lower Parking Area:

Re-configure the lower parking area to accommodate bus drop-off, loading and parking. This would include a staging area for groups. A more effective vehicular flow could be accomplished by eliminating the camping area and putting in a one-way traffic flow through the parking area.

Priority 3

Upper Parking Area:

Develop additional parking at the western edge of the park beyond the existing utility shed. Design should use existing topography and vegetative screening to minimize visual access to parking area from park area.

New Picnic Area:

Develop picnic sites in the flat area between Pavilion 3 and the new parking area.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster – Lower Overlook:

This cluster of two panels will eventually be located in Pavilion 1, but for now will be located at the lower overlook.

- Panel 1:

  This is a thematic overview of the Ice Age Floods to provide context.

- Panel 2:

  This is a site-specific panel focusing on the formation of Palouse Falls and the lower Palouse Canyon.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Interpretive Panel Cluster – Upper Overlook:

This cluster of two panels, will be located in the current Vista House and eventually located in Pavilion 3.

- Panel 1:

  This panel will focus on how the Palouse Canyon and canyon walls were formed and shaped by flood waters.

- Panel 2:

  This pane focuses on how the change in landscape affected human activity in the area.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs. The kiosk with the panel should be sited near the junction of the parking area and existing trail to the lower viewpoint. It would replace the existing kiosk.

Interpretive Trail – Ice Age Floods Impacts:

This interpretive trail connecting the lower parking area to the upper viewpoint should be developed as an interpretive trail with several stops focused on the impact of the floods on biota, such as vegetation, wildlife and humans.

Walking Trail with interpretation:

This trail would connect the lower viewpoint to a viewpoint above the Pinnacles. Interpretive stops would focus on the geomorphology story that can be read in the landscape. Interpretation would be delivered by means of the park brochure.

Personal Interpretation/Programs:

Programs relating to the Ice Age Floods will be presented initially in the lower picnic area in available space. Pavilion 2 will be designed, with shaded seating, as the location for presenting programs.

Loop Auto Tour:

Develop a loop auto tour encompassing Sacajawea State Park, Wallula Gap, Palouse Falls, Lyons Ferry, Washtucna Coulee (the old riverbed of the Palouse River) and other sites associated with the floods. Sites associated with other geomorphologic events could be included. When the new Interpretive Center at Hanford Reach is completed, the tour should include that site. Interpretation will be delivered via an auto tour brochure, and included in the regional guide to Ice Age Floods.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Guided Interpretive Tours:

These guided tours would originate on the cruise ships coming up the Snake and docking at Lyons Ferry.

Implementation Plan

An implementation plan identifying priority of the Palouse Falls strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Palouse Falls State Park Map

site plan image in full version

PALOUSE FALLS / field note image in full version

PALOUSE FALLS / field note image in full version

Eastern Region

Potholes State Park

Overview

This site is significant because of wind-blown sand that created dunes and depressions. Sand was dropped by the Ice Age Floods as the water lost velocity crossing the Quincy Basin. The wind carried and shaped the sand into typical crescent-shaped dunes. Water collecting in the depression created what have been termed ' potholes' although they are not true potholes of the type created by moving water. When O'Sullivan Dam was built, many of the dunes were inundated. One issue involving interpretation in the park is that the sand dunes are most visible in the north end of the park, but the public access is at the south end. On the plus side, the park is situated in the midst of features associated with the Ice Age Floods, including Lind Coulee, ice-rafted erractics, and the Drumheller Channels, one of the most spectacular scabland tracts of the Ice Age Floods.

Status

Potholes is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

If the existing interpretive trail is to remain, it should be upgraded to ADA accessibility and the interpretation re-developed.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster:

This set of three panels is located in the Day Use Area oriented to the east across the reservoir to the small butte marking the northern end of Drumheller Channels.

- Panel I:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific interpretive panel focusing on the formation and subsequent inundation of the sand dunes to create the existing landscape.

- Panel 3:

  This panel using the butte in the distance to focus on the pathway of the floods after Potholes and on the formation of the Drumheller Channels. Reference to Frenchman's Hills as a 'collector' feature that forced the water to the Drumheller Channels should be included. The panel on the Drumheller Channels would include why the water ended up channeling through this area, and why the landscape was sculpted into the Drumheller Channels.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming opportunities. The kiosk with the panel should be sited near the restrooms in both campgrounds and in the Day Use Area.

Short Trips from Potholes:

This could be expanded to include a variety of trips, but Potholes is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by features

related to the Ice Age Floods. However, the road system is not conducive to a short loop tour of those sites. Therefore, a small booklet highlighting short trips of discovery from the park could be developed for use by those staying overnight.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Potholes Reservoir and Moses Lake:

This would be a complete orientation and interpretive guide from the perspective of people on the water. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Interpretive Trail:

The existing interpretive trail at the south end of the Day Use Area could be modified to include stops that provide interpretation on different aspects of the Ice Age Floods.

Note: That we are not suggesting an interpretive trail dedicated to that topic; we are simply suggesting the existing trail be re-developed and upgraded, and in the process, modified to include interpretation on this subject.

Implementation Plan

An implementation plan identifying priority of the Potholes strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Potholes State Park Map

site plan image in full version

Eastern Region

Riverside State Park

Overview

This park occupies high areas that provide a good view of the pathway of the floods on their way through the Spokane area. The most compelling feature along the route is the Bowl and Pitcher in the Spokane River. The feature is a result of basalt flows covering the area on top of the Latah Formation. The Ice Age Floods eroded the Latah Formation to undercut the basalt, causing huge chunks of the rock to fall into the river valley. Basalt cliffs prominently displaying columnar basalt provide the opportunity for interpreting the basalt flows that set the stage for sculpting by the Ice Age Floods, and then the role of the floods in shearing off the basalt to create the cliffs. Of note is that the park receives over 3 million visitors a year, but most are Day Users and most are repeat. This is perhaps due to the lack of easy access from I-90.

Status

Riverside State Park will be a secondary story site and secondary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster – Day Use Area:

This set of three panels is located in the Day Use Area at the end of the walking bridge.

- Panel I:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific panel focusing on the geomorphologic formation of the area, including the basalt flows flowing in and through an older less stable Latah Formation.

- Panel 3:

  This is a site-specific panel focusing on how the Ice Age Floods sculpted the landscape by undercutting the basalt blocks, causing them to tumble into the valley floor.

- Panel 4:

  This is the Ice Age Floods Regional Orientation Panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Interpretive Panel Cluster – Equestrian Area:

This cluster of three panels is located at the trailhead for the Equestrian Area.

- Panel 1:

  This is a thematic overview panel to provide context.

- Panel 2:

  This is a site-specific panel focusing on the role of the floods in changing the course of the Spokane River and the role of the flood waters in exposing the basalt cliffs and causing the basalt blocks to tumble into the river.

- Panel 3:

  This is the Ice Age Floods Regional Orientation Panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure

holder for distributing the regional Ice Age Floods orientation map/brochure.

Note: This cluster would also have an Ice Age Floods Height Finder

Note: The two sites for interpretive panel clusters were selected because of visual access to key features, because of the high visitation to the two areas, and because parking is available.

Personal Interpretation/Programs:

The park has an amphitheater. Within the array of programs offered in evening programs should be programs on the Ice Age Floods with emphasis on how the flood events shaped the surrounding area (it changed the course of the Spokane River) and caused impact on the flora, fauna and human use of the area. Ideally the Regional Ice Age Floods Orientation Map/ Brochure would be distributed at the end of the program.

Distribution Center:

A small visitor information station is located along the access road to the campgrounds and Day Use Area. The facility currently distributes maps and brochures. It should also include guidebooks, brochures and other such regional publications associated with the Ice Age Floods.

Bowl and Pitcher Overview Panel:

This would be located near the feature along the trail from the lower parking area. It would provide a condensed version of how the feature was created and direct people to the overlook. The reason it focuses on the feature and does not provide as much detail is that it is down near the valley floor, without a good view of the surrounding landscape.

Interpretive Talks:

The vistas in parts of the park, notably the trailhead for the Equestrian Area, are excellent locations for giving an interpretive talk on the Ice Age Floods because the view contains a variety of features that can be used to tell part of the story. If this were adopted as a regular interpretive opportunity, consideration should be given to developing a set of benches where people can sit while attending a talk.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Explorers Guide to Riverside State Park:

As with several other parks, interpretive opportunities could be developed that interpret a number of stories, including the Ice Age Floods. Riverside State Park is very large, with a wide variety of interpretive and recreational opportunities. It has an extensive trail system including part of the Centennial Trail, Day Use areas, camping areas, the Spokane House Interpretive Center, and equestrian areas. A map of the site currently exists, but it has no interpretive information. A booklet with orientation and interpretive information could be effective in facilitating a good visitor experience while exposing visitors to the story of the Ice Age Floods.

Implementation Plan

An implementation plan identifying priority of the Riverside strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Riverside State Park Map

site plan image in full version

Eastern Region

Centennial Trail

Overview

This is a 39-mile trail from the Spokane River in Riverside State Park to the Idaho border with some parts paved and some not. Much of the trail makes use of existing roadways. Users include cyclists, runners, hikers, walkers, skateboarders, equestrians and roller-bladers. Most are residents of the area. For much of the length, the trail contains places where users can stop and rest, such as the benches in Riverside State Park and the benches in Riverfront Park in Spokane. This creates the opportunity to key interpretive information to sites where someone using the trail is likely to stop and rest or just take in the view. The trail also has numerous trailheads. As with the Columbia Plateau Trail, the Centennial Trail passes through area impacted by the Ice Age Floods.

Status

Centennial Trail is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Note: One interpretive panel cluster in Riverside Park will be along the trail and therefore easily accessible to those using the trail.

Interpretive Panel Cluster – Riverfront Park:

This site is managed by the City of Spokane, but an MOU could allow this interpretive strategy to be developed..

- Panel I:

  This is a thematic overview panel to provide context.

- Panel 2:

  This is a site-specific panel that focuses on the visible impacts of the flood from this site and in the immediate area.

- Panel 3:

  This is the Ice Age Floods Regional Orientation Panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described.

  Note: This site may not be under the jurisdiction of WSPRC. If not, perhaps an MOU could allow this interpretive strategy to be developed

  Note: This site is accessible to those using the Centennial Trail and also to all those visitors to Riverfront Park, thus it could be very effective in attracting people into the interpretive network for the Ice Age Floods.

Guided Ice Age Floods Bicycle Tours:

These tours could cover a section or all of the trail. Interpretation would focus on the Ice Age Floods and related geomorphologic events and resulting features, such as the Latah formation and basalt flows, and also on the impact of the floods on flora, fauna and human activity.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Centennial Trail Guide Booklet:

This would not focus entirely on the Ice Age Floods, but would be a complete orientation and interpretive guidebook to the trail. The interpretive information would be keyed to the viewsheds at benches and other logical rest areas or stopping places along the route.

Guided Interpretive Bicycle Tours:

These tours could cover a section or all of the trail. Interpretation, as with the booklet, would focus on a variety of stories and features.

Implementation Plan

An implementation plan identifying priority of the Centennial Trail strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Sacajawea State Park

Overview

This is the closest WSPRC property to Wallula Gap, which was the bottleneck that caused a hydraulic lake to form over the Pasco Basin. However, the Gap cannot be seen from this site. The rounded hills in the viewshed would have been islands in the floods, so the height of the flood and its tremendous depth of water can be pointed out from the site. The park is at the confluence of the Snake and Columbia Rivers, and is likely sitting on top of bedload deposited by the Ice Age Floods, overlain by later sediment deposited by the two rivers.

Status

Sacajawea is a secondary story site and a secondary orientation site.

Recommended Changes to Layout and Infrastructure

None recommended for interpreting the Ice Age Floods.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Interpretive Panel Cluster:

This set of three panels is located in front of the interpretive center, near the water's edge, with a clear view downstream toward the Horse Heaven Hills. Although it is difficult to pick out Wallula Gap, it is clear that a barrier of hills exists to the south and west.

- Panel I:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific panel focusing on Wallula Gap and the impact on the surrounding area, including the fact that water flowed up the Snake and Walla Walla River valleys and deposited bedload.

- Panel 3:

  This is the Ice Age Floods Regional Orientation Panel, which includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods orientation map/brochure.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Interior Overview Exhibit:

An interior temporary overview exhibit would make people aware of the event and be a motivator for purchase of non-fixed strategies such as auto tours and publications for exploring and discovering floods features. The exhibit should include a map covering the extent of the floods, with the auto tour highlighted and the sites along the auto tour highlighted with photographs.

Distribution Center:

The visitor center should have a small section containing regional literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods.

Note: also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Personal Interpretation/Programs:

The park currently offers guided tours of a traditional Wanapum native village that has been re-created at Sacajawea State Park, by the Wanapum Band of Native Americans, Grant County PUD and the Wanapum Heritage Center. If possible, Native American accounts of the great floods should be included within the tour along with directions as to where to get more information on the Ice Age Floods.

Boaters Guide to the Columbia and Snake Rivers:

This would be an orientation and interpretive guide to the Columbia and Snake Rivers for those taking tour boats. It could be prepared in sections so only the section appropriate to this stretch of river would be distributed here, but the entire book could be available for people taking cruises up the river. Note that this is a stop for some of the sternwheelers.

Regional Bike Trail Tour Guide:

This would be an orientation and interpretive guide to the regional bike trail. It would include overview interpretation of a variety of stories, keyed to locations where bikers are likely to stop and rest. Note that this would have to be in collaboration with others.

Implementation Plan

An implementation plan identifying priority of the Sacajawea strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Steamboat Rock State Park

Overview

The rock is an erosional remnant and at one time would have separated two cataracts of a waterfall in the upper coulee. The top of Steamboat Rock exhibits evidence of a lot of different geomorphologic events. It is built of basalt flows, has glacial erratics and moraines from the ice sheet during the ice ages, and a coulee from the Ice Age Floods. With the height of the rock and breadth of the Coulee, the amount of sediment gouged out by the waters can be interpreted. Also, the contrast between the granitic rock upstream and the basalt cliffs is a good opportunity to focus on the role the basalt played in creating the features evident today. What could be significant is the granitic rock just upstream from the feature. The granite was resistant, which reduced the force of the water on Steamboat Rock, which is why it was not eroded away with the rest of the rock. This is also the point where Ice Age Flood waters came into the coulee from Northrup Canyon. The variety of features in Northrup Canyon creates an opportunity to focus on the erosional effects of the flood waters.

Status

Steamboat Rock is a primary story site and a primary orientation site.

Recommended Changes to Layout and Infrastructure

An amphitheater is needed in this park. Since the park has two camping areas, an amphitheater centered between the two might be the most effective location. We also recommend developing a walking/interpretive trail connecting the two campgrounds and the Day Use Area.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Develop an amphitheater and put on evening programs, which should include programs focusing on the Ice Age Floods. The Regional Ice Age Floods Orientation Map/Brochure should be distributed at the conclusion of the program. If possible, guidebooks could be sold also.

Interpretive Panel Cluster:

This set of three panels is located in the Day Use Area oriented upriver, with good visual access to the granite located adjacent to the Parking Area and to views to the north.

- Panel I:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific interpretive panel focusing on the formation of the upper Grand Coulee in general and Steamboat Rock specifically, and the role of the granite in protecting the rock from the full force of the flood waters.

- Panel 3:

  This panel focuses on how the resulting features affected the way humans have used the area over time (geo-determinism). This would include a focus on the use of the Coulee as a travel route.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Ice Age Floods and basalt flows features playground:

This would use features in miniature accompanied by interpretive panels. Features could include a series of steps looking like a miniature of the stepped formation of a series of basalt flows; a pothole; a cave such as the ones created at the base of a waterfall; and a series of columnar basalt columns at different heights for climbing. This playground should have a miniature of Steamboat

Rock, with miniatures of Ice Age Flood features on top (coulee, glacial erratics and moraines) with associated interpretation. It is possible that the panels on top would simply ask if the person knew the origin of the features and the answer could be in panels down below. For those children with parents, they could ask the question and the parents would have the answer. Also, the series of basalt flows should have information embedded to interpret the fact that a child is climbing up in time.

Interpretive Trail – Northrup Canyon:

This is located in Northrup Canyon Natural Area and focuses on the role of granite, basalt and the Ice Age Floods in forming the landscape and the subsequent effect on flora, fauna and humans. The beginning of the trail should be near the parking area but located at a point that it can function as an interpretive viewpoint.

Interpretive Trail – Campgrounds:

This loop trail is in the area between the two campgrounds. The focus would be on the key geomorphologic events and forces that heavily influenced the way the area looks today, and the subsequent impact on flora, fauna and human use. The Ice Age Floods would be a major focus of the story, and the granite and basalt flows would be interpreted from the viewpoint of the role they played in conjunction with the flood waters in forming the landscape. Ideally, the trail would be easily accessible from both campgrounds, and the amphitheater would be located in the center of the loop.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the regional Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs in the amphitheater. A kiosk with the panel should be sited near the restrooms in both campgrounds and in the Day Use Area.

Guided Walks:

Several guided walks could be offered, including one that traversed the area between the rock and Day Use Area and one that included a walk to the top of Steamboat Rock.

Interpretive Talks:

These could be offered in the Day Use Area because the area has visual access to a variety of features that could be used tell different parts of the story.

Short Trips from Steamboat:

This could be expanded to include a variety of trips, but Steamboat is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by features related to the Ice Age Floods. However, the road system is not conducive to a short loop tour of those sites. Therefore, a small booklet highlighting short trips of discovery from the park could be developed for use by those staying overnight. Trips should include Crown Point, Lake Lenore Caves, Northrup Canyon Natural Area, Dry Falls and Sun Lake.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Upper and Lower Coulee Lakes:

This would be a complete orientation and interpretive guide from the perspective of people on the coulee lakes. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Hiker's Guide to Steamboat Rock State Park:

This guidebook would include the hike to the top of Steamboat Rock, the trail up Northrup Canyon, and all the walking trails in the park. Interpretation would focus on a variety of stories, including the Ice Age Floods.

Implementation Plan

An implementation plan identifying priority of the Steamboat Rock strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

STEAMBOAT ROCK / field note image in full version

Eastern Region

Sun Lakes State Park

Overview

This site is at the head of the lower Grand Coulee, which was one of the major features created by the Ice Age Floods. From this site, a visitor has spectacular views of the surrounding columnar basalt that comprises the coulee walls. This also provides a good perspective for understanding the amount of material eroded away by the floods. Finally, because of the combination of a resort, a campground, Camp Delaney and the Day Use Area, Sun Lakes can have over 1000 people at any given time in the park.

Status

Sun Lakes is a primary story site because of the array and significance of features and a primary orientation site due to the large amount of visitation.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Develop an amphitheater and put on evening programs, which should include programs focusing on the Ice Age Floods. The Ice Age Floods Regional Orientation Map/Brochure should be distributed at the conclusion of the program.

An Ice Age Floods and basalt flows features playground:

This would use features in miniature accompanied by interpretive panels. Features could include a series of steps looking like a miniature of the stepped formation of a series of basalt flows; a pothole; a cave such as the ones created at the base of a waterfall; a series of columnar basalt columns at different heights for climbing; and perhaps a surface with “ripples” for rolling down or running up and down. Associated interpretive panels would interpret the features and provide an opportunity for parents to ask questions of their children such as, “what would live in this feature?” or, “how did the flood waters create this feature?” This feature should be located in the Day Use Area adjacent to (or replacing) the current play feature.

Ice Age Floods Interpretive Trail:

This trail would be located on the low hill running along the east side of the camping area. The high ground is perfect for views of the coulee walls, and views up and down the coulee. The trail would use interpretive panels focusing on a variety of features to tell the story of the basalt flows and Ice Age Floods and the impact they had on flora, fauna and human use of the area. The trailhead would contain an interpretive panel cluster that would include a thematic overview panel, a panel providing an overview of the formation of the coulee and a trail orientation panel.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs in the amphitheater. A kiosk with the panel should be sited at the interpretive center and at the parking area for the existing interpretive trail.

Distribution Center:

The new facility that will be built near the marina will have a space that can be used to distribute key interpretive literature. Auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods should be considered. Other interpretive materials could also be sold, such as guides to wildflowers or geology tours of the area.

Interpretive Panel Cluster:

These three panels will be located initially at a site just to the east of the marina so people will see the opportunity when they visit the marina or the store. When the new facility is completed, the panels will be moved to a deck at the back of the facility.

- Panel 1:

  This panel is a thematic overview to provide context for the other panels.

- Panel 2:

  This is a site-specific panel using the view to the south to focus on how the Ice Age Floods sculpted the coulee.

- Panel 3:

  This panel will focus on the resulting impact on flora and fauna, but with an emphasis on human use. The use of Lake Lenore Caves should be included along with information indicating that the site can be visited.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the floodwaters. A simple text panel should provide the height of the floodwaters above the point where the person is standing.

Guided tours:

Guided tours could be based from the park or from Camp Delaney.

Interpretive Talks:

These could take place anywhere that key features are visible and listeners can be comfortable (in the shade at least and sitting down if possible). One possibility is to create places around the campground and Day Use area that can be used as gathering/presentation spots when a talk is being given, and contemplation areas when not. Such areas would have a number of benches. One such location would be a high point along the proposed interpretive trail.

Short Trips from Sun Lakes:

This could be expanded to include a variety of trips, but Sun Lakes is one of the few parks where it does not matter which road a person takes to leave the park, he or she will pass by features related to the Ice Age Floods. However, the road system is not conducive to a short loop tour of those sites. Therefore, a small booklet highlighting short trips of discovery from the park could be developed for use by those staying overnight. Trips should include Crown Point, Lake Lenore Caves, Northrup Canyon Natural Area, Dry Falls and Steamboat Rock.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Upper and Lower Coulee Lakes:

This would be a complete orientation and interpretive guide from the perspective of people on the coulee lakes. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Implementation Plan

An implementation plan identifying priority of the Sun Lakes strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Dry Falls Interpretive Center

Overview

Dry Falls is perhaps the most significant and spectacular site in terms of the Ice Age Floods. If water were running over this cataract, it would be 10x the size of Niagra Falls. The features create good opportunities to tell a wide variety of stories associated with the floods. The dry falls create the opportunity for interpreting a receding waterfall; the basalt cliffs create the opportunity to tell the story of the role of basalt in forming the features associated with the Ice Age Floods; the breadth and depth of the coulee at this point creates a good opportunity to focus on the amount of material removed by the floods. Finally, the presence of the Grand Coulee, a topographic feature created by the Ice Age Floods, creates the opportunity to focus on the impact of the floods in altering the landscape, and therefore influencing how people use the land.

Status

Dry Falls Interpretive Center is a primary story and orientation site.

Recommended Changes to Layout and Infrastructure

In addition to an increase in the array of interpretive opportunities at Dry Falls, significant modifications to the layout and infrastructure would enhance the visitor experience at this site. We recommend the following changes:

Priority 1

New viewpoint:

Develop a new interpretive viewpoint on a point on the rim of the coulee about 200 yards south of the existing interpretive center.

Interpretive Trail:

Construct a fully accessible interpretive trail from the existing parking area to the new viewpoint. Interpretation along the trail is described in the section on interpretive strategies.

Orientation Kiosk:

This would be located adjacent to the existing interpretive center. It would hold the Ice Age Floods Regional Orientation Panel, the site orientation panel and a bulletin board or other surface for posting information on tours and other opportunities.

Priority 2

Re-develop existing parking area:

Pull parking back from the rim, replace with lawn, and develop a walking trail along the edge. Develop a shaded seating area on what is now the island in the parking area for giving interpretive talks. Develop additional parking along the highway to the south of the entrance. Design should use existing topography and vegetative screening to minimize visual access to parking area from park.

Priority 3

New Interpretive Center:

Develop a new interpretive center back from the rim to the south of the existing facility and remove existing facility.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Overlook with Interpretive Panel Cluster:

This cluster of three panels will be located at a new overlook to the south of the center. The overlook will be accessed by an ADA accessible trail. An extension of the trail could access a contemplation area – no fixed interpretive strategies.

- Panel 1:

  This panel focuses on the impacts of the floods in terms of deposition and erosion. For example, it could be a map with areas color coded to indicate deposition or erosion. Such a map would extend all the way into the Willamette Valley, and would also indicate the expanse of ocean floor significantly affected by the floods. The deposition/erosion designation could include unique shading for the areas in which a significant amount of material from the Grand Coulee was deposited.

- Panel 2:

  This panel focuses on the impact of the floods on human activity, including forming new travel

routes, influencing agriculture, and forming gravel deposits that are the site of recent or current mining activities. Quincy Basin should be a focal point of the interpretive panel because southbound travelers will likely be passing through that area.

Interpretive Trail – Ice Age Floods Impacts:
This trail, which accesses the new viewpoint, will include interpretation focusing on the impact of the floods on biota, such as vegetation, wildlife and humans.

Interpretive Panel Cluster – Parking Area:

This cluster of three panels will be located at this time in an area developed as an interpretive area at the edge of the existing parking lot, adjacent to the historical kiosk. When the parking area is pulled back from the edge, this interpretive panel cluster would be on the walkway along the edge.

- Panel 1:

  This is a thematic overview panel covering the story of the Ice Age Floods to give the story context.

- Panel 2:

  This is a site-specific panel focusing on how the flood waters formed dry falls. The latter would have an explanation of a receding waterfall.

- Panel 3:

  This panel focuses on raptors and other wildlife or wildlife sign (such as the white stain of uric acid from rodents) that visitors are likely to see from the viewpoint. The information on the panel focuses on the role of the floods in creating habitat.

Ice Age Floods Height Finder:
These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the flood waters. A simple text panel should provide the height of the flood waters above the point where the person is standing.

Audio listening posts:

These provide a narrative, using a voice representing J Harlan Bretz (note no period after his first name – a Bretzian peculiarity), explaining the formation of Dry Falls.

Interior Exhibits:
A new set of interior exhibits focusing on the Ice Age Floods story, the role of basalt flows, Bretz and the impact of the floods on the biota that came afterwards. In other words, the whole story is told here. Specific exhibits could include the following:

- The Advancement of Knowledge:

  This is the story of J Harlan Bretz told with the context of the scientific process referred to as the 'Hegelian dialectic.' This process is one in which the commonly held belief is the thesis; someone proposes a rival theory – an antithesis; the scientific community debates it, sometimes for years, and develops a synthesis, which becomes the new thesis – the commonly held belief within the scientific community. One possible way to tell the story is to have the visitor 'listen in' on a debate between Bretz and a member of the scientific community.

- Setting the Stage:

  This exhibit focuses on the geomorphologic evolution of the area preceding the floods. The Columbia River basalt flows would be a part of the story.

- The Ice Age Floods:

  This is probably a series of exhibits focusing on the cause of the floods and the impacts in general, and in this area specifically. It would also include an exhibit specifically about the formation of the Upper and Lower Grand Coulee and Dry Falls.

- The Long Term Impacts:

  This is a two-part exhibit with one part focusing on the impact on humans throughout time and the other focusing on the impact on flora and fauna. The first part would include present day impacts that affect people of the region. The latter part includes a focus on wildlife currently using the habitat created in part by the floods.

Distribution Center:

The visitor center should have a section containing relevant literature, videos, DVDs, taped auto tour guides and any other such interpretive strategies about the Ice Age Floods. Note also that it is critical that the person who staffs the visitor center be aware of additional interpretive opportunities in the area that relate to the Ice Age Floods.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as

a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for posting information on upcoming programs including evening programs in Sun Lakes. The kiosk with the panel should be sited at the interpretive center.

Interpretive Talks:

These could be offered as a scheduled feature and as an opportunity for tour groups. The location would depend on the focus of the talks. To facilitate talks focusing on the site, consider a seating area in the shade on the raised ground in the island in the middle of the parking area.

Implementation Plan

An implementation plan identifying priority of the Dry Falls strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Dry Falls Site Map

site plan image in full version

Dry Falls / field note image in full version

Eastern Region

Lake Lenore Caves

Overview

Lake Lenore Caves were created by the turbulent waters of the Ice Age Floods plunging over the lip above and eroding out the columnar basalt at the base. Relative to the surrounding landscape, which was also carved by the Ice Age Floods, the caves are not especially impressive, and there are other places where it is easier to tell the story of how columnar basalt is eroded by plunging water. They are also not the largest of such features within the coulee. However, they are very accessible and are noteworthy because they were used by Native peoples for shelter and storage, thus it is an excellent place to focus on the story of the impact of the Ice Age Floods on subsequent use of the landscape by humans. The tilted rock surfaces in Lake Lenore, visible from this site, create the opportunity to focus on other forces that had impact on the geomorphology of the area.

Status

Lake Lenore Caves is a secondary story site and does not really function as an orientation site other than to send visitors to Dry Falls.

Recommended Changes to Layout and Infrastructure

In terms of interpreting the Ice Age Floods, no changes to the infrastructure are recommended.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Note: Plans currently exist to locate interpretive panels along a trail that has been constructed from the lower parking area to a point on the lake. Our understanding is that those signs will focus on watchable wildlife. We recommend approaching the story from the perspective of the impact from the Ice Age Floods by focusing on habitat, created by floodwaters, that attracts wildlife to this area.

Interpretive Panel Cluster:

These panels would be located in the level graded area at the north end of the upper parking area (this will be the terminus of a watchable wildlife trail that currently ends at a point on the lake).

- Panel 1:

  This is an Ice Age Floods thematic overview panel to provide context.

- Panel 2:

  This is a site-specific panel on the process of erosion by the flood waters in areas of basalt – this would be linked to formation of the coulee and to formation of the caves.

- Panel 3:

  This panel focuses on geo-determinism – the role of the landscape in influencing human use of the area. The major focus would be use of the caves for shelter and use of the coulee for travel. However, the story should be extended to the soil in the Quincy Basin that now supports agriculture. This panel should include a note that the visitor can learn more by visiting Dry Falls Interpretive Center.

Ice Age Floods Height Finder:

Plans currently exist to locate interpretive panels along a trail that has been constructed from the lower parking area to a point on the lake. Our understanding is that those signs will focus on watchable wildlife. We recommend approaching the story from the perspective of the impact from the Ice Age Floods by focusing on habitat, created by floodwaters, that attracts wildlife to this area.

Comments

Lake Lenore Caves would be a stop on guided tours from Sun Lake-Dry Falls State Park and would be included in the 'Short Trips From Steamboat Rock State Park' and the 'Short Trips from Sun Lakes-Dry Falls State Park' booklets.

Implementation Plan

An implementation plan identifying priority of the Lake Lenore Caves strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

LAKE LENORE CAVE / field note image in full version

Eastern Region

Wanapum Recreation Area

Overview

Wanapum does not contain key features associated with the Ice Age Floods. However, it does have key features visible from the site, including Frenchmen Gap, a narrow gap in the Frenchman Hills that would have caused floodwaters to back up the Columbia River, and basalt cliffs on the east side of the river that were created by the combination of layers of Columbia River basalt flows and the erosional force of the Ice Age Floods. However, it does have high visitation and is proximate to a variety of key features associated with the Ice Age Floods, including Frenchman Coulee.

Status

Wanapum is a secondary story site and secondary orientation site.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Develop an amphitheater and put on evening programs, which should include programs focusing on the Ice Age Floods. The Ice Age Floods Regional Orientation Map/Brochure should be distributed at the conclusion of the program. If possible, guidebooks could be sold also.

Interpretive Panel Cluster:

This set of three panels is located on the point of land jutting into the water at the north end of the Day Use Area.

- Panel 1:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific interpretive panel focusing on the role of the flood waters in creating the landscape visible from the panel, which is the basalt cliffs across the river and upstream from that point.

- Panel 3:

  This panel focuses on the impact of Frenchman's Gap in slowing the waters and causing them to back up, inundating the area in a lake and causing the floodwaters to drop bedload. This was a cause of the slackwater features found in Ginkgo Petrified Forest State Park.

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the flood waters. A simple text panel should provide the height of the flood waters above the point where the person is standing.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs. The kiosk should be sited at the restrooms in the Day Use Area and both campgrounds.

Interpretive/Walking Trail:

To get the most use out of the interpretive panel cluster, it is important to facilitate use by those camping at the campgrounds. Linking the Day Use Area to the lower campground with an

interpretive trail will help because most visitors want to get near the water, and many like to take a walk in the evenings or at some point during the day. The trail would interpret the prominent geomorphologic features, such as the basalt cliffs across the river, the flora and fauna of the area, and the human history with emphasis on how it was affected by the floods.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people on the Columbia, including the stretch of river above and below Rocky Reach Dam. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Implementation Plan

An implementation plan identifying priority of the Wanapum strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Wenatchee Confluence State Park

Overview

The Wenatchee area was at the margin of the flood and does have visible features to interpret, the most significant of which is probably Pangborn Bar on which East Wenatchee is built. However, the significance of the site is not so much in features as in location. The Wenatchee area has a very large array of features related to the Ice Age Floods, so the community is well positioned to be a 'Gateway' community for visitors who want to explore the story. With that in mind, the park, which has high visitation, is well positioned to be an orientation hub for exploration by those visiting or staying overnight.

Status

Wenatchee Confluence is a primary orientation site because of the volume of visitation combined with the access to a variety of Ice Age Floods features in close proximity. It is a secondary story site because it does not have many features visible on-site.

Recommended Changes to Layout and Infrastructure

This park needs an amphitheater as soon as possible. With the number of overnight sites and the occupancy levels, there is a high potential to reach a lot of people with evening programs and stimulate them to begin an Ice Age Floods interpretive experience.

Recommended Ice Age Floods Strategies

Note: Conceptual design of the final set of recommended strategies will be included in the final plan.

Evening Programs:

Develop an amphitheater and put on evening programs, which should include programs focusing on the Ice Age Floods. The Ice Age Floods Regional Orientation Map/Brochure should be distributed at the conclusion of the program. If possible, guidebooks could be sold also.

Interpretive Panel Cluster:

This set of three panels is located at the end of the Day Use Area parking lot near the dock. The site is easily accessible and has a good view of Pangborn Bar, the river (downstream view) and the mountains to the west.

- Panel 1:

  This is a thematic overview panel giving the overall story of the Ice Age Floods.

- Panel 2:

  This is a site-specific interpretive panel focusing on the role of the floodwaters in creating the landscape visible from the panel, which is the Pangborn Bar and features downstream from that point, and on features in the surrounding area that people can visit, such as Moses Coulee.

- Panel 3:

  This panel focuses on how the resulting features affected the way humans have used the area over time (geo-determinism).

Ice Age Floods Height Finder:

These are two height finders, one set at a level accessible to those in wheelchairs or to children, and one at a higher level. The actual design can vary, but the devices should be embedded in the structure housing the panel focusing on thematic overview and focused on a point in the surrounding landscape that represents the height of the flood waters. A simple text panel should provide the height of the flood waters above the point where the person is standing.

An Ice Age Floods and basalt flows features playground:

This would use features in miniature accompanied by interpretive panels. Features could include a series of steps looking like a miniature of the stepped formation of a series of basalt flows; a pothole; a cave such as the ones created at the base of a waterfall; a series of columnar basalt columns at different heights for climbing; and perhaps a surface with "ripples" for rolling down or running up and down. The latter would be a good feature to use for focusing interpretation on the Pangborn Bar. Associated interpretive panels would interpret the features and provide an opportunity for parents to ask questions of their children such as, "what would live in this

feature?" or, "how did the flood waters create this feature?" This feature should be located in the Day Use Area near the restrooms.

Ice Age Floods Regional Orientation Panel:

This panel includes a statewide map highlighting Ice Age Floods interpretive opportunities as a backdrop for a larger scale map of the region with opportunities highlighted and described. Ideally, this would have a brochure holder for distributing the Ice Age Floods Regional Orientation Map/Brochure. The panel will be located on an orientation kiosk that should also contain site orientation and a bulletin board or other surface for putting up information on upcoming programs including evening programs in the amphitheater. The kiosk should be sited in a central location easily accessible by foot from the Day Use and overnight areas. Since it is likely that most people who stay overnight will walk down to the water, one possibility is to site it in the Day Use Area, near the amphitheater, along one of the pathways connecting the overnight area to the pathway along the water.

Distribution Center:

This site does not have a visitor center and we are not proposing one for the park, but some type of strategy for distributing key interpretive literature, such as auto tour guides, guidebooks and any other such interpretive strategies about the Ice Age Floods should be considered. Other interpretive materials could also be sold, such as guides to wildflowers or geology tours of the area. One possibility is to use a temporary facility, such as a trailer, that could be used seasonally. It could also house a bicycle concessionaire.

Ice Age Flood Interpretive Bicycle Tours:

These guided tours would use the regional bike trail to access a variety of erratics and other features located along the route associated with the Ice Age Floods. Note that this would be more effective if a bicycle concessionaire was located in the park.

Additional Interpretive Opportunities

The following are interpretive opportunities that could contain interpretive information on the Ice Age Floods, but would not be dedicated solely to that story.

Boaters Guide to the Columbia:

This would be a complete orientation and interpretive guide from the perspective of people on the Columbia, including the stretch of river above and below Rocky Reach Dam. Interpretation would include features related to the Ice Age Floods as well as those related to other geomorphologic events. It would also interpret flora, fauna and cultural history.

Regional Trail Bicycle Tour Brochure:

This guide to the regional trail that runs through the park should contain both orientation and interpretive information. The interpretive information should cover more than the Ice Age Floods, but that story should be a key part of the interpretation. Also, consideration should be given to a bicycle rental concessionaire for the park. The publication distribution center could be a part of the bicycle concessionaire operation.

Implementation Plan

An implementation plan identifying priority of the Wenatchee Confluence strategies within the park and within the Ice Age Floods strategies throughout the network will be developed for the final plan.

Permitting Considerations

Permitting considerations will be included in this section in the final report. However, expanding and/or finalizing permitting considerations will occur after receiving comments on the recommendations to ensure cost efficiency.

Eastern Region

Associated Sites

Although the network within the State Parks combined with the non-fixed strategies such as guidebooks and maps will be effective in telling the story of the Ice Age Floods, the network would benefit significantly from strategies in several sites not in the project scope and not under the jurisdiction of WSPRC. The following information identifies those sites and describes briefly in what way they could enhance the network. The list is not intended to be inclusive of all such sites.

Rest Areas

Rest areas are key sites for making people aware of sites in the surrounding area that offer interpretive opportunities. They are not good story sites, but can be used effectively for a 'grabber' to pique interest followed by orientation information to guide travelers to sites with additional interpretive and/or orientation information. The following are key rest areas within or near the flood boundaries:

- Ryegrass RA (I-90)

  Ryegrass is a key portal site for travelers eastbound on I-90. Features associated with the floods are not visible from this site, but they start appearing in the landscape soon after leaving the Rest Area, so it is a good place for information on 'what to look for as you travel east.' It is also a good place to make people aware of the opportunities to stop and start experiencing the flood story. Soon after leaving this Rest Area travelers will drop down into eastern Washington at Vantage and come to the margin of the floods and the Columbia River basalt flows. Travelers can begin an Ice Age Floods interpretive experience at Ginkgo Petrified Forest or at Wanapum. Although more interpretive opportunities are available at Ginkgo, the access to water and the day use area may be more appealing to some travelers. Regardless, both sites have interpretive opportunities that would introduce a traveler to the Ice Age Floods story.

- Winchester RA (I-90)

  Winchester is a key site for travelers going either direction. It is in the Quincy Basin, which benefited significantly from the soil deposited by the flood waters so some interpretation can be provided keyed to visible features. For those heading west, Frenchman Coulee, Wanapum and Ginkgo Petrified Forest are less than 30 minutes away along I-90. For travelers going east, access to the Coulee Corridor Scenic Byway is close. That Byway accesses such features as upper and lower Grand Coulee, the fields of erratics north of Moses Lake, Drumheller Channels and other such features. With that in mind, this is a good place to put an Ice Age Floods Regional Orientation panel along with some key tidbits of information to pique interest.

- Schrag RA (I-90)

  Schrag is a key site for travelers going either direction. It is in the Quincy Basin, which benefited significantly from the soil deposited by the flood waters, and is surrounding by rolling hills covered with crops, so some interpretation can be provided keyed to visible features. For those heading west, the scablands are not too far away. For those going east, Frenchman Coulee, Wanapum and Ginkgo Petrified Forest are within a few hours and access to the Coulee Corridor Scenic Byway is close. That Byway accesses such features as upper and lower Grand Coulee, the fields of erratics north of Moses Lake, Drumheller Channels and other such features. With that in mind, this is a good place to put an Ice Age Floods Regional Orientation panel along with some key tidbits of information to pique interest.

- Sprague Lake RA (I-90)

  Sprague Lake Rest Area is not only a key site to make travelers aware of upcoming opportunities, it is a very good story site. It is in the scablands – areas scoured by the floodwaters – with good visual access to a variety of typical scabland features. In other words, this should not only be an orientation site it should be an interpretive site. The eastbound Rest Area has a paved trail located along a rim overlooking scabland features, which would be a good location for interpretive panels.

- Quincy Valley RA (SR28)

  SR 28 is the main route linking Wenatchee to Interstate 90. The Rest Area is a central location to a large array of easily accessible significant Ice Age Floods features, such as Frenchman Coulee and Moses Coulee. It is also close to

several key State Parks including Ginkgo, Wanapum and Wenatchee Confluence. For travelers heading toward Wenatchee, interpretive and orientation information could make them aware of Moses Coulee and Pangborn Bar, the gravel bar on which East Wenatchee is built. It could also make them aware of the array of interpretive opportunities available in the area and direct them to Wenatchee Confluence for more information. For travelers heading to I-90, information could make them aware of Frenchman Coulee, Wanapum, Ginkgo Petrified Forest and the opportunities along the Coulee Corridor.

- Hatton Coulee RA (US 395)

  This is the major Rest Area between Interstate 90 and the Tri-Cities area, and is located along the access route from US 395 to Steptoe Butte. It is therefore a key location to make travelers going any direction aware of Ice Age Floods interpretive opportunities. For those going south, it would be Palouse Falls and the new interpretive center at Hanford Reach. For those going north, it would be the features and opportunities in the Cheney/Spokane area or the opportunities in the Moses Lake area and further west. For those going east on SR26, it is Steptoe Butte. For those going west, it is Drumheller Channels and Ginkgo Petrified Forest. In other words, it is a strategic location for raising awareness about the interpretive network and so is a good place for an Ice Age Floods Regional Orientation Panel.

- Blue Lake RA (SR 17)

  This site is along the best stretch of highway in the floods area for interpreting the floods. Travelers going south are likely to have already stopped at Dry Falls, but they could be reminded of Lake Lenore Caves which is only a few miles to the south along the highway. For those going north, it is a chance to make them aware of the benefits of stopping in at Sun Lakes and also at the Dry Falls Interpretive Center. For that reason, this is a good place for an Ice Age Floods Regional Orientation Panel. It would also be a good place for an interpretive panel focused on the Coulee, but congestion and lack of space may be an issue.

- Vernita RA (SR 24)

  For those going south, this Rest Area is on the way to Hanford Reach National Monument and therefore, will be a portal to the new interpretive center there. For those traveling north, it is a good opportunity to make them aware of loop auto tours that would take them to Drumheller Channels, Potholes, Ginkgo Petrified Forest, Frenchman Coulee and other sites.

- Prosser RA (I-82)

  For those traveling southeast, this Rest Area will be along the route to the new Interpretive Center at Hanford Reach so it is a good opportunity to make visitors aware of the center after it is built.

- Selah Creek RA (I-82)

  For those traveling southeast, this Rest Area will be along the route to the new Interpretive Center at Hanford Reach so it is a good opportunity to make visitors aware of the center after it is built. For those going north who will then go east, it is an opportunity to key them into features and opportunities along I-90 east of Ellensburg.

Other Sites

The following are sites that could play key roles in the interpretive network.

- Moses Lake

  Moses Lake is located central to several key interpretive sites and associated experiences relevant to the Ice Age Floods. It is on the Coulee Corridor Scenic Byway which accesses Lake Lenore Caves, Sun Lakes-Dry Falls, Steamboat Rock and Crown Point park areas to the north; and Potholes and Drumheller Channels to the south. It is on Interstate 90, which accesses Frenchman Coulee, Ginkgo Petrified Forest, Wanapum to the west and the Cheney/Spokane area and its Ice Age Floods opportunities to the east. Travelers from the east heading to Wenatchee and the parks in that area may also come through Moses Lake and travelers from the west heading toward the Tri Cities and the opportunities in that area may also come through Moses Lake. In other words, it is centrally located to Ice Age Floods interpretive opportunities in eastern Washington.

  For that reason, a multi-agency visitor center would be a very effective strategy in an interpretive and orientation network, not just for the Ice Age Floods, but for the Coulee Corridor Scenic Byway, Columbia National Wildlife Refuge, Lake Roosevelt NRA and other tourism opportunities in the area. This is not a strategy that WSPRC would take on by itself, but they could play the role of a catalyst, and could benefit from such a facility. Other key players could be Grant County, USFWS, NPS, USFS and BLM.

- Wallula Gap

  Wallula Gap is a key feature in the story of the floods, but WSPRC does not have a good site or the prospects of a good site to interpret this feature. It will be included in guidebooks and literature, but fixed interpretation would reach people who did not have any relevant publications and could be a catalyst for generating interest in the story. The best place to provide fixed interpretation is at the roadside pullout that currently has a heritage marker on a roadside pullout between the Tri Cities and the wildlife refuge. From this vantage point a traveler has a clear view of Wallula Gap. That view is compromised as you travel north or south. Local groups are working on developing interpretive signage and materials in this area. It would be useful for WSPRC to be in touch with these groups and coordinate efforts.

- Steptoe Butte SP

  The significance of this site in terms of the Ice Age Floods is that it has views of the landscape as it would have looked before the Ice Age Floods scoured the landscape. Therefore it is a good site to be used in conjunction with sites within the area impacted by the floods to focus on the impact on the landscape.

- **Spokane Visitor Information Center**

  This may be a good opportunity to raise awareness as travelers come into Washington State.

Appendices

Appendix A.
Goals and Desired Outcomes

Introduction
The goal hierarchy contained in this section reflects the following structure:

WSPRC Mission
Resource Management Goals
Interpretive Network Goals
Information Network Objectives and Desired Outcomes

The hierarchy is developed in this manner to clearly show the link between recommended actions and the agency mission in regards to developing interpretive opportunities.

WSPRC Mission
The mission of the Washington State Parks and Recreation Commission is as follows:

> *The Washington State Parks and Recreation Commission acquires, operates, enhances and protects a diverse system of recreational, cultural, historic and natural sites. The commission fosters outdoor recreation and education statewide to provide enjoyment and enrichment for all, and a valued legacy to future generations.*

The word 'enrichment' in the 21st century of management can be interpreted to include facilitating economic benefits to surrounding communities, especially rural communities, specifically through fostering sustainable tourism opportunities.

In October 2003, in anticipation of its centennial as a state park system, the Washington State Parks and Recreation Commission developed its Centennial 2013 Vision:

> *"In 2013, Washington's state parks will be premier destinations of uncommon quality, including state and regionally significant natural, cultural, historical and recreational resources that are attractive for public experience, health, enjoyment and learning." Within the plan, one of the "Legacy" projects is to* ***"Unveil the Mystery of the Ice Age Floods."***

In summary, interpreting the Ice Age Floods in the Washington State Parks not only fits within the broad purview of the mission statement, but is a specific goal identified by the agency.

Information Network Objectives and Desired Outcomes
The next level of goals is determined by viewing interpretation as a tool to help achieve the mission of the agency through changes in visitor knowledge, attitudes and/or behaviors. This approach is based on the following concept:

> ***Information is a tool to cause impact on the recipient of the information.*** *Information obviously can change knowledge, but through that change, attitudes and behaviors can be influenced. So whether a change in knowledge is sought as a means of enhancing a visitor experience, as a means of influencing attitudes to influence opinions, or as a means of directly influencing behavior to minimize negative impacts on a resource, communication can be used to help achieve desired impacts. The desired*

changes in behavior, attitude and knowledge represent the Desired Outcomes of the communication effort and are the justification for the time and effort spent developing and maintaining the information network.

Based on this concept, the next step in the process is to define specifically what attitudinal and behavioral changes are desired. The changes in knowledge that will lead to those desired changes in attitudes and behavior can then be identified. Desired changes in knowledge are reflected in the themes or concepts that the audience is to understand after participating in the interpretive opportunity. The set of Desired changes or Outcomes can be used to develop a network of interpretive and wayfinding strategies that focus on achieving those Outcomes while also enhancing the recreational experience.

To arrive at the Desired Outcomes, the following question was asked: *"How can an information network help achieve the mission?"* Specifically, in the project, how can an information network help protect the natural features associated with the Ice Age Floods while providing recreational and interpretive opportunities based on those resources at the site, and how can the interpretive and wayfinding network help support sustainable tourism? How can we use an interpretive network to promote tourism and economic development in balance with preserving the intrinsic qualities of the parks? The following objectives and outcomes for the information network were derived in that manner.

Information Network Objective #1: Protect and conserve Ice Age Floods features in the parks while using them to provide recreational and educational experiences.

This objective can be accomplished in part by developing an information network to achieve the following Desired Outcomes in terms of visitor attitudes and behaviors:

1-1: An increase in the sense of appreciation and personal value to visitors for the features associated with the Ice Age Floods event and story specifically, and as an extension, to natural and cultural resources in general. This outcome can be accomplished in part by making visitors aware of the value of intact resources as a tool for discovering the 'story' of our past.

1-2: An increase in awareness among users of negative personal impacts to the features associated with the floods and ways those impacts can be minimized. This outcome will contribute to a stronger stewardship ethic and a decrease in negative impacts due to ignorance.

1-3: An increase in appropriate use patterns and behaviors among park visitors and those who take part in interpretive opportunities related to the floods that take place outside of park boundaries.

1-4: An increase in awareness of the story of the Ice Age Floods and the impact they had on the physical landscape and on subsequent cultural use of the land and its resources.

Information Network Objective #2: Increase public support and strengthen the constituency for WSPRC and the other agencies and entities involved in protecting Ice Age Flood features, and increase support for development of a complete network of interpretive opportunities related to the Ice Age Floods.

This objective can be accomplished by developing an information network to achieve the following Desired Outcomes in terms of visitor attitudes and behaviors:

2-1: An increase in the appreciation and personal value to visitors for Ice Age Floods

features and associated interpretive opportunities provided at the parks, specifically, and in the surrounding areas, in general.

2-2: An increase in awareness of the identity of the WSPRC and other partners responsible for the interpretive opportunities at the parks and at other sites associated with the floods.

2-3: An increase in satisfaction by park users as a result of the information network in the park and surrounding area associated with the Ice Age Floods.

2-4: An increase in appreciation/approval of WSPRC due to providing high quality interpretive, recreational, and/or educational experiences associated with the Ice Age Floods.

2-5: An increase in awareness of and interest in the existing array of interpretive opportunities related to the Ice Age Floods, and the complementary nature of those opportunities, in Washington State.

2-6: An increase in awareness of and support for the planned interpretive and wayfinding network associated with the Ice Age Floods in Washington State.

Note: These outcomes can be achieved in part by simply offering high quality, contemporary, user-friendly, desirable interpretive opportunities and by ensuring that visitors know who supplied such opportunities.

Information Network Objective #3: A significant increase in the number of visitor days from target markets at park sites and at related sites specifically due to a desire to learn more about and/or see features associated with the Ice Age Floods.

A significant amount of money is being spent to plan and develop interpretive and wayfinding opportunities associated with the Ice Age Floods, so having more people visit to take advantage of that expenditure would provide justification for the action. An information network can help achieve this objective by increasing the attraction and holding power of the visitor opportunities. More specifically, it can help by achieving the following Desired Outcomes in terms of visitor attitudes and behaviors:

3-1: An increase in awareness on the part of the potential traveler of the array of desirable visitor opportunities associated with the Ice Age Floods at each park, in the surrounding area, in other WSPRC units, and in the rest of Washington State. This outcome can be accomplished in part by creating more opportunities (i.e. developing the interpretive opportunities recommended in the plan) and/or by a more effective wayfinding network to make it easier for people to plan and take trips to sites with Ice Age Floods features. .

Appendix B.
Audience Analysis

Introduction

Information is a market product in that visitors must "buy" it with their personal resources, including time—their most valuable currency—and perhaps effort and money. It cannot be expected that visitors will "buy" an information experience unless it is a product that they deem to be worth buying. Experiences that users are willing to buy can generally be described as ones that:

- Meet their needs
- Meet their expectations
- Are within their limitations of time, money, energy, and other such resources
- Can compete successfully with other options for spending time, usually through association with interests that were the reason for the visit in the first place

In summary, those categories of characteristics are as follows:

- Needs include basic amenities, such as food, shelter, bathrooms, and wayfinding information. State Parks as a general rule do not need to supply all the visitors' needs, but may want to direct them to locations where such needs can be filled if the visitors are not from the area, such as to nearby lodging or eating establishments. Visitors need wayfinding information to feel comfortable in their ability to cope with an unfamiliar environment and may not be as receptive to interpretive information until properly oriented so a park must supply wayfinding information for the park at a minimum. If one of the goals is to motivate people to explore the surrounding landscape focusing on features related to the Ice Age Floods, the park will have to supply wayfinding information for the surrounding area also.

- Expectations are much more variable because they are created. Visitors will expect a certain level of service, a certain type of experience, and certain information based on what they've heard and seen regarding a park. In terms of interpretation, visitors will expect the opportunities to be high quality, and will expect to have the most prominent features interpreted, which will often be features related to the Ice Age Floods, but not always. Beacon Rock is a volcanic plug related volcanic activity that shaped the area so interpretation at that site must start with that feature, and link it to the floods. The key point is to start a visitor where he or she wants or is willing to start in terms of interpretive information, and then take that person where we want them to go, which is to the Ice Age Floods story.

- Limitations are those factors that tend to offset the personal benefit for engaging in an experience and can therefore cause a potential user to bypass an opportunity. For example, visitors are often on vacation and do not want to 'work'—either physically or mentally—at their recreation unless the reward is worth the effort required. This has important implications in the selection and design of interpretive strategies and programs. For example, interpretive trails must be within the energy and time limits of the visitor. As another example, interpretive signs should be designed for legibility, among other factors, to reduce effort so they are within the capabilities of the visitor to read the text. Limitations can also be related to physical ability, language, education level and many other characteristics.

- Interpretive Opportunities are, in essence, the stories that can be told effectively in a park or in the surrounding area. The stories that can be interpreted and communicated most effectively are those that can be 'seen' in the landscape. Consequently, an inventory of interpretive opportunities is essentially an inventory of features and the stories related to

those features. For example, the landscape around Dry Falls tells the story of repeated flows of basalt followed by powerful surges of water pouring across the landscape; Beacon Rock tells the story of volcanic activity and subsequent erosion – two forces in the geomorphologic evolution of the gorge; and the petrified trees at Ginkgo tell the story of climate change and basalt flows that transformed the landscape. That does not mean that the interpretation is confined to features that are visible; it simply means that interpretation of visible features provides a good starting place for interpretation, especially since doing so meets visitor expectations regarding something that should be interpreted.

Since needs, expectations, limitations and opportunities are directly related to, determined by, and vary according to the user, it is important to identify typical user segments, and then build a profile of that segment. This audience analysis focuses on identifying the major target user segments and constructing a profile of each of those segments based on needs, expectations, limitations and interests. Since one of the goals is to motivate visitors to one site to visit other sites associated with the Ice Age Floods, we assume that every site will potentially have the same general audiences, so all are profiled in this section. A few of the sites, such as Centennial Trail, the Columbia Plateau Trail and several sites along the Columbia with boat ramps, will have users who are predominantly activity-oriented. Those users are profiled in this section also. Audience characteristics unique to visitors to a particular park are included in the description of information relevant to that park.

Target Markets

Identification of target markets is based on observations by park staff, historic use, and extrapolation of travel and recreation patterns that exist in other parts of Washington and the United States. Based on information from those sources, the following are probably the key target audiences:

Independent Travelers:
This includes leisure-oriented travelers, such as vacationers and day-trippers, and also other travelers with some discretionary time to spend, such as business travelers, people visiting friends in the area and other such travelers.

Organized Groups:
This includes commercial tours and other such groups, but not educational groups.

Residents of the area:
This includes all the people living near a park.

Activity-oriented users:
This includes equestrians, mountain bikers, hikers, boaters and anglers. As a general rule, it includes groups for whom interpretive opportunities may be regarded as interfering with their desired activity.

Educational groups:
This includes University field trips, school field trips and Elderhostels.

Note: Specialists, such as those with a lot of knowledge regarding the Ice Age Floods, are not listed as a target audience because interpretive opportunities are not generally designed to reach this small minority of visitors. Interpretation caters to those with moderate or little knowledge of a subject because interpretive opportunities with more detailed information reach only a small minority of visitors, and generally cannot communicate anything to those visitors that they do not already know.

Note: With the implementation of the Day Use Fee ($5.00) in Washington State Parks, visitor use patterns changed. With the potential elimination of this fee (2006 Season), visitor patterns will change again – potentially to previous patterns but not necessarily. Therefore, it will be important to track changes in user groups and adjust accordingly if necessary.

General Characteristics

All Target Audiences

Key Characteristics:

The following set of characteristics should be considered as part of the profile for all the target audiences:

- Many visitors will expect staff and volunteers associated with the State Park to answer basic questions regarding the basic Ice Age Floods story – geology of eastern Washington, causes, features at the specific area and timeline – especially at Parks where the story is prominent (i.e. Dry Falls and Palouse Falls).
- Every audience will ask questions that cannot be answered.
- Visitors from every audience will expect wayfinding information to interpretive and recreational opportunities in the surrounding area, especially ones with a similar focus (i.e. other prominent Ice Age Floods features in the area – not necessarily State Park owned/managed).
- With the exception of visitors with technical expertise and some university groups, the knowledge level of visitors regarding geology and the Ice Age Floods story is likely to be very basic or non-existent.
- Any given audience will have a variety of impairments represented.
- Users will have varying limitations in terms of energy, time, interests, and preferred learning styles.
- Users will have varying degrees of educational background.
- People tend to visit in groups—family or friends. Families and other similar groups have a variety of educational levels within the group.
- Groups, especially families, often prefer to interact with each other while participating in an interpretive experience.

Implications:

The following are key implications of these characteristics:

- Interpretive opportunities such as signs and exhibits should be designed to accommodate at least small groups (i.e. several people of varying ages involved at the same time).
- Any interpretive program should provide opportunities that allow all members of a family or group to be involved at the same time and place, despite having different educational or experiential backgrounds. This can be accomplished by providing several opportunities, each catering to a different educational level, in one location, or a single strategy that is designed in such a way that everyone in the group can find something of interest.
- All staff and volunteers at a Park should be trained in question-response strategies, be provided with basic information about the Ice Age Floods, be provided with answers to typical questions, and know where to direct visitors for additional information. In other words, everyone either has to be able to answer basic questions or direct visitors to where they can get answers. An effective way of making the necessary information available is through familiarization tours of nearby areas and associated information packets.
- The interpretive program must offer opportunities that are understandable to audiences with limited expertise and knowledge.
- As a whole, the interpretive program should use universal design standards to make the information accessible to all people, despite any impairment, whether it is visual, auditory, physical or otherwise.

  Note: An interpretive program that addresses all impairments will also serve an aging population because impairments—not age— ultimately limit a person's ability to engage in interpretive opportunities.

- To the extent possible, the interpretive program should provide an array of strategies that include opportunities for each of the basic learning styles – observation, social interaction, and hands-on.
- To the extent possible, the interpretive program should present information in a way that is rewarding, within the limits imposed by a 'leisure' activity, and arranged thematically to keep effort low.

- To the extent possible, the interpretive program should offer opportunities to "skim," "browse," or "gorge" the information to accommodate preferences and to accommodate visitors on a tight schedule.
- The interpretive program should provide an 'opportunity menu' that lists time required for each activity and suggested itineraries based on time available. For example, it should suggest an itinerary for the visitor that has a half-hour, 2 hours and a half-day. The interpretive program should offer information at different levels corresponding to different educational backgrounds.

Independent travelers

General Comments:

According to the 2002/2003 Strategic Recommendation for Washington State Tourism presented by Publicis in the West, people in the U.S. work longer and take less vacation than people in any other industrialized nation. With such limited vacation time, potential travelers are reluctant to travel in part due to a cost-benefit analysis that often leaves them unsure of the benefits. Visitors want to be sure that the return on investment is going to be worthwhile. Therefore, they are likely to be more attracted to areas that offer a diverse array of opportunities that can be enjoyed within a 4-5 day 'breakation,' as the report termed the shorter vacations that are becoming more common. From this perspective, it is in the best interests of WSPRC to integrate the parks with other nearby opportunities to present an image of an area that has a wide array of opportunities rather than just presenting the opportunities at a Park. Developing parks as 'hubs' or 'portals' leading to an Ice Age Floods interpretive experience encompassing a larger area and multiple sites is consistent with the characteristics of this market.

The 2004 Visitor Profile for Northeast Washington Counties (Washington State Tourism Office) illustrates the strong interest visitors to the four northeast counties have in geology. Nineteen percent of all overnight visitors to these counties mention that one of the reasons for visiting this part of the state is for learning more about geology. Note that "Visit Geological Site" (Figure 2) is a separately listed category and ranks 8th in all activities during a trip. Although this represents a small geographic area of the state, this level of visitor interest has potential for growth in the more heavily traveled areas of Washington State.

Figure 2: Activities of 2004 Overnight Visitors to 4 NE counties in Washington

Key Characteristics:

- Independent travelers in general prefer to have information easily available in the sequence in which they want to use it, which appears to be: 1) General trip planning and wayfinding; 2) Site-specific trip planning and wayfinding; 3) Thematic overview: 4) Interpretive detail.
- Many travelers prefer to plan part of their trip, including their itinerary, prior to arriving. Many will use the Internet to access information in order to plan.
- Travelers prefer user-friendly, easily accessible wayfinding information at the beginning of their experience and throughout. This could include information accessible via the Internet, but also information accessible along the route and at sites associated with their trip. The constant need for reassurance on location and wayfinding is why a fixed wayfinding strategy, such as a sign at a parking area, is insufficient to meet all the wayfinding needs of the visitor.
- Many independent travelers prefer or desire recommendations for itineraries or other places to visit during their trip. Many prefer potential itineraries to include travel time required instead of or in addition to distance so they can plan accordingly.
- In general, the larger the array of opportunities of interest to a visitor that are available in an area, the more attraction power the area has. This is consistent with the profile of the target market for Washington identified in the 2002/2003 tourism marketing strategy recommended by Publicis.
- Many tourism studies indicate that the most important quality of a vacation is fun. Relaxing, escape from schedule, exciting, culturally enriching, authentic, safe and different are also appealing attributes.

- Travel patterns for travelers usually show families traveling more in the summer months and retired travelers traveling more in the spring and fall.
- The mass marketing of the last few decades has shifted to one-to-one marketing because of the ability of travelers to develop an itinerary specific to their interests. This is due in large part to the technological developments, especially the Internet, in the field of tourism.
- A number of sources indicate that a growing number of tourists identify authentic experiences as an important factor in travel plans. The Ice Age Floods story, told at sites with features created by the event, should appeal to visitors seeking an authentic experience. These travelers tend to travel in small groups, use hotels and motels.
- Soft adventure (outdoor activity during the day, luxury at night) is a very attractive visitor experience for this group.

Additional Implications (not covered in general implications)

The following are key implications of these characteristics:

- Seasonal shifts in programs should be considered.
- Provide easy to use Internet website for trip planning – make connection to WA State Tourism HYPERLINK "http://www.experiencewashington.com" www.experiencewashington.com website.
- Other opportunities should be marketed in conjunction with those related to learning about the Ice Age Floods.
- The opportunities of the Ice Age Floods experience should be described in these terms such as 'fun,' 'relaxing,' 'authentic,' and other attributes that appeal to the target markets.
- Information about potential opportunities offered on the Internet should be offered in such a way as to facilitate a potential visitor building his or her own itinerary.

Organized Groups

Several interpretive sites associated with the Ice Age Floods, including Palouse Falls, Dry Falls Interpretive Center, and Ginkgo Petrified Forest, are currently used by commercial bus tours and organized groups, some of which focus strictly on geology. In addition, other tours, such as boat tours up the Columbia and Snake Rivers, pass by many features associated with the Ice Age Floods so interpretation could be offered to passengers on those tours. The following are key characteristics of this target market:

Key Characteristics:

- Tend to be in groups organized by commercial companies or interest groups (senior centers, Elderhostels, community education tours) who provide transportation and prepare an itinerary and schedule;
- Some visitor groups may be international. These groups are usually accompanied by an interpreter;
- These groups tend to be relatively homogenous (age, race, experience level)

Implications:

The following are key implications of these characteristics:

- Basic interpretive materials need to be available in the common languages spoken by a significant number of visitors to a park (i.e. Japanese at Ginkgo and Dry Falls; Spanish at all sites, especially Palouse Falls);
- A commercial tour is usually on a schedule so programs or opportunities that fit the allotted time frame are most likely to be used;
- Staffing of State Park facilities may need to be flexible to accommodate tours;
- Infrastructure has to be appropriate to handle a large numbers of visitors concentrated at one time. This includes adequate restroom facilities, and may include a variety of interpretive and/or recreational (such as photographic) opportunities so the group can be split into smaller groups and pulsed through a site;
- This target market usually has a high interest in purchasing souvenirs related to the site and/or story;
- Because the tours are organized and scheduled, it is possible to provide information prior to and after a visit;

- Because most people on the bus do not have to attend to driving, it is possible to provide interpretive information keyed to the route of the tour. This information can be in an audio format, by publication, or by personal interpretation.

Residents

Key Characteristics:

The following are key characteristics of residents and should therefore be considered in developing the interpretive network:

- Residents often desire experiences that are only for residents and don't require competing for space with tourists.
- Residents often prefer opportunities that fit their time frame, which is often concentrated in evenings and weekends throughout the year.
- Residents often prefer new material since they are more likely to be repeat visitors.
- Residents often prefer or can handle more in-depth material about their home due to their familiarity with the area and issues.
- Residents are often interested in local issues.

Key Implications:

The following are key implications of these characteristics:

- Interpretive opportunities geared to residents, such as city walks (Wenatchee), bike tours (Wenatchee), 'What's in Your Backyard' tours, evening outreach programs and community events should be a part of the interpretive network. Note that this is a good way to recruit volunteers.

Activity-Oriented Visitors

Equestrians, mountain bikers, in-line skaters, anglers and boaters are likely to view some interpretive opportunities as interfering with their desired recreation because they take time that could be used engaging in the primary activity of interest. Although many other visitors are oriented toward specific activities at a park area, such as bird watching, camping, nature study and picnicking, interpretive opportunities are more compatible with those activities because they do not take time away from or prevent a person from engaging in the primary desired activity.

Despite the apparent lack of compatibility of interpretation to the desired experience of this group, it is an important group because of the potential of members to have negative impacts on the resources. Consequently, an attempt should be made to communicate key concepts. The following is a list of characteristics shared by most visitors who fall into this category that have impact on identifying and designing effective interpretive opportunities.

Key Characteristics:

- Although these visitors are not likely to be interested in interpretive information, they will be interested in wayfinding information, especially information associated with their primary activity of interest.
- These users may have others in their group who are not engaged in their primary activity and who may be interested in interpretive opportunities.
- Many of these activities have natural 'stopping' or 'resting' periods, such as at benches, or by streams. These are ideal places to provide optional interpretive information that can add to their experience.

Implications:

The following are key implications of these characteristics:

- Interpretive information can be coupled with desired wayfinding information to create opportunities for interpretation and interest in the subject.
- Others in the group may be amenable to interpretive opportunities, and may be

especially amenable if they are easily accessible from the location that is being used by the activity-oriented users in the group.
- Optional interpretive information can be keyed to natural stopping or resting places, which vary by user. For boaters, it is when they are on the water; for equestrians, it is likely to be at places where they can turn their animals to feed or water; for in-line skaters it is benches, and for mountain bikers, it might be viewpoints where they can rest at the top of a long climb.

Educational Groups

Note: Some of the preferences noted for this group are not in the category of information, but are important considerations if this market is to be served.

Key Characteristics:

Typically, with educational groups in the K-12 range, the user that must be sold on the experience is the teacher. Therefore, it is important to look at the characteristics of the instructor as well as the students for guidelines to be used in developing experiences that will be desirable enough to be used. The following are key characteristics of school groups in general:

- Group size is often around 100 students, chaperones and teachers.
- A trip to a site such as Dry Falls could include the lunch hour because it might be an all-day trip.
- The trips usually take place in the spring, when poor weather is not uncommon.
- School groups will tend to be from local/regional area

The following are key characteristics of a site and program that would appeal to school groups:

Site Characteristics:

- Covered staging areas for providing an immediate focal point for organizing and orienting students.
- Facilities with multiple toilets and urinals.
- Turn around space for large vehicles.
- Covered picnic areas for eating lunch.

Program Characteristics:

- An interpretive program offering numerous opportunities of approximately the same length because that allows the large group to be split into several smaller groups and pulsed through the site.
- A well-organized schedule, with no waiting and with clear directions.
- A program that supports the curriculum in the school. In the case of Washington State Public Schools, a program can be tailored to help fulfill an Essential Academic Learning Requirement (EALR) will be more attractive to teachers. In this case, the Science Essential Academic Learning Requirement appears to be most appropriate, with the story of the Ice Age Floods used as a vehicle for understanding systems and the story of Bretz used as a vehicle for understanding scientific inquiry.
- Interactive, multi-sensory experiences, especially if the children are younger.
- A time period that can fit within a school day due to the cost of overnight trips.
- Inexpensive opportunities. Budgets are limited and the cost of transportation is often already a factor.
- Opportunities that cannot be duplicated in a classroom.
- Opportunities that give a big bang for the buck. In other words, opportunities where many activities are available in one location.
- Opportunities for students to interact with specialists.

Appendix C.
Parameters

Introduction
An information network works most effectively when it meshes with and takes advantage of the context within which it is located. Otherwise, it could duplicate other opportunities or not work effectively due to location, traffic flow, competing attractions or other factors. Therefore, the intent of this step is to address the question:

> *What is the context into which the network of wayfinding and interpretive opportunities must fit?*

Parameters are those conditions under which an information network must be developed, such as monetary constraints, and under which it must function, such as climate. Identifying parameters ensures selection and development of communication strategies and infrastruture that are effective and realistic, not idealistic. For this project and plan, general parameters covering all or the majority of sites in the study are included here. Site-specific parameters are covered in the write-up for each park.

General Parameters
The following section contains key parameters that could affect the information network at all or the majority of parks in the project. In reviewing the parameters, it is important to remember that they represent what is, not what should be or what is desired.

Context

C-1: A bill has been introduced into Congress to create an Ice Age Floods National Geologic Trail administered by the National Park Service and encompassing the pathway of the floods from Montana through Idaho, Washington and Oregon. As of now, no other state or federal agency is in the process of planning or developing a comprehensive Ice Age Floods interpretive network. It is in the best interests of the state of Washington to develop a network that can provide a template and basis for the eventual interpretive and wayfinding network that will encompass all 4 states. To do so requires attempting to envision the larger network so the media prescription for each park is appropriate for the site as a part of a larger whole. However, the network for the WSPRC parks must function as a stand-alone network until other interpretive opportunities are developed. Coordination with other agencies and entities likely to be involved in the project is desirable.

C-2: Interpretation of the Ice Age Floods occurs in many venues and locations along the flood route but it is not coordinated or standardized. WSPRC will be the first effort in this direction. To the extent possible, these opportunities should be integrated into the proposed network.

Budget

B-1: Funds for implementation and ongoing operation and maintenance are likely to be limited. This has several implications: A phased approach to developing the information network may be important. The first phase should contain projects that can be completed easily and show results in order to maintain enthusiasm and motivation. Low maintenance opportunities should be prime components of the basic network.

Staffing

S-1: Staffing for interpretive and orientation opportunities is likely to be very limited. Personal interpretive services can provide a unique and personal experience for park visitors. If consistent funding can be identified, every park in this plan should have at least one program that can be presented in their local facilities, at park programs or in the local community.

However due to funding issues, it is unlikely that paid staff will be dedicated to providing or assisting with interpretive opportunities on a regular basis at most of the sites. Volunteers may be available, and the Ice Age Flood Institute does exist, but depending on volunteers is not without issues. Consequently, self-guided opportunities should form the basis of the network and should be sufficient to provide a satisfactory experience.

> *Note: This does not lead to a recommendation against personal interpretive services. It simply leads to a recommendation for an interpretive network that can function without personal interpretive services, but would certainly be enhanced by the addition of such opportunities.*

Vandalism

V-1: Vandalism may be an issue. Virtually all sites in the project have or could have issues with vandalism. Therefore, signage and structures out of visual access from high-use areas or areas with rangers should be minimized. Also, all signage should be constructed with vandal-resistant materials.

Location and Access

LA-1: The array of sites covers a large area and sites are often separated from other sites by a significant distance. The wayfinding network is critical to marketing and facilitating a larger experience involving multiple sites. It will be important for local park managers to consider how their visitors connect with their park and the local surrounding communities.

Environmental Conditions

E-1: Summers are likely to be hot and winters relatively cold. This has several implications: Exterior informational opportunities must be either stored during winter months or constructed of materials highly resistant to the anticipated weather conditions. Areas with shade should be developed for giving interpretive presentations in the summer.

Surrounding and Associated Attractions

SA-1: Washington State Parks as a whole has a large array of features and interpretive opportunities relating to the Ice Age Floods under their jurisdiction. However, the majority of features and sites associated with the Ice Age Floods are located on lands under the jurisdiction of agencies and entities other than the WSPRC. This has several implications: Care has to be taken to support the rights of private property owners by making visitors aware that all features and sites they might see in the landscape once they leave the park are not necessarily accessible. A basic approach may be to do as much as possible within each park in terms of interpreting the Ice Age Floods, and then encourage people to visit other sites outside the park, including other state parks, where they can get more of the story.

Safety

SF-1: Every site in the network has potential hazards. These hazards range from rattlesnakes and steep cliffs to railroad right-of-ways, barbed wire and swift water. Appropriate safety information needs to be incorporated into the interpretive strategies, especially the Discovery Guides.

Appendix D.

Park-Specific Parameters & Opportunities

Introduction

The following section contains an overview of every park considered in this study. Information for each park contains the following:

Ice Age Floods Significance
This is just a brief paragraph noting the significance of the site in terms of the event or in terms of telling the story.

Key Ice Age Floods Interpretive Opportunities
In general, people become more interested in a subject when they can see something related to it, and they are more likely to believe what they can see than what they only hear or read. Therefore, the more an interpretive program connects with and uses actual artifacts or features in conveying information, the more effective the program will be. The inventory of opportunities within the context of Interpretive Planning focuses on inventorying artifacts and features available for use in the interpretive program in order to develop a story based on what visitors can see or experience. In this case, the focus is on features associated with the Ice Age Floods.

Key Parameters and Unique Audience Characteristics
These are site-specific characteristics or characteristics unique to audiences who come to this site that potentially affect the interpretive strategies at this park.

Comments
This includes any additional points that affected the array of strategies being considered.

Permitting considerations were assessed prior to the initial submittal; however, since the media prescription has shifted significantly in some parks, those considerations are no longer current so they have not been included here. Specific permitting considerations for the strategies in each park will be included in the final plan but they will not be developed until the final array of strategies and locations of fixed strategies are approved because the permitting considerations depend heavily on location and extent of disturbance to an area.

Southwest Region

This region only contains two parks within the project – Beacon Rock State Park and Cape Disappointment State Park. However it does contain a wide variety of other sites with key features, especially in the Portland-Vancouver Area and the Columbia Gorge. Also, Beacon Rock is within the Gorge, one of the most significant sites in the Ice Age Floods story.

Beacon Rock State Park

Ice Age Floods Significance
The Columbia Gorge is significant in terms of the Ice Age Floods. The Gorge was a bottleneck for the flood waters backing up a hydraulic lake beyond Wallula Gap. From the Gorge, the floods slowed down and dropped bedload, which is what the cities of Portland, Troutdale, Gresham and east, are built on. On the Washington side, a similar 11-mile long gravel bar formed behind Prune Hill. Its west end is what the Port of Vancouver is built on. In the process of passing through the narrow river canyon, the flood waters tore away at the columnar basalt, helping to create the cliffs faced with columnar basalt that dominate the Gorge. Beacon Rock is a volcanic plug, representing another force of change within the Gorge, that was probably exposed by flood waters passing around and over the top of this feature.

Key Ice Age Floods Interpretive Opportunities

The key feature at the site, Beacon Rock, is associated primarily with volcanic activity, another geomorphologic force that shaped the area. However, the story of the Ice Age Floods can be integrated into a story focusing on key forces and events that shaped the Gorge. That includes the volcanic activity in the Gorge, uplift associated with tectonic activity, and the action of water, including the Ice Age Floods. Specifically, the story could focus on how geology shaped the landscape through the evolution of Beacon Rock – volcanic activity causing the volcanic plug, later excavation of the Columbia Gorge slowly by the river and then the Ice Age Floods swiftly scouring away soft material around the plug to leave the modern spire.

From the Day Use Area, cliffs of columnar basalt are clearly visible. This would be a place to focus on impact of the combination of Columbia River basalt flows and erosion by the flood waters.

Key Parameters

- This is the one property within the heart of the Columbia River Gorge under the jurisdiction of WSPRC. The erosional effects of the flood (shearing off columnar basalt) are clearly visible from the Day Use Area.
- Beacon Rock is best veiwed from the interpretive trail in the Day Use Area.
- There is a small indoor visitor center, so it is possible to sell interpretive materials associated with the Ice Age Floods. However, the facility is removed from the restrooms and interpretive panels, the location where most travelers along the highway stop.
- There are new exhibits in the Day Use area – one refers to the floods, including the scouring of the cliffs across the river and the floodwaters being so deep as to overtop the Rock.
- This park is in the middle of the gorge, and has the potential to act as a portal for travelers going east or west. Therefore, it could function more as a starting point for travelers who can then get more of the story in sites to the east, west or across the river.
- The key location for capturing visitors to Beacon Rock State Park is most likely the restroom facility east of the rock. It also has interpretive panels, but lacks site orientation information.
- The new Day Use Area is not well marked.

Cape Disappointment State Park

Ice Age Floods Significance

This is adjacent to the point where the flood waters emptied into the Pacific Ocean, carrying with them as much as 99% of the material it scoured from the landscape. Some of that material has ended up as far away as offshore northern California. It is established that the undersea area that received the eroded material from the Floods is larger than the land area affected by Lake Missoula and the Floods, and the length of the undersea flow is longer than the overall reach of the waters on the land.

The Cape Disappointment area lacks the sculpted features such as basalt cliffs, scabland features and coulees, that are prominent in other parts of the network, and that are effective in capturing and holding attention and in telling the story. Part of the reason may be because the water was moving slower through this area and with less volume, and it may be in part because the ocean level is about 300 feet higher today than it was during the Ice Age when the floods occurred. That means the shoreline was miles further to the west. Regardless of the lack of landforms sculpted by the floods, the viewshed does contain two features associated with the event – the Columbia River and the Pacific Ocean, and specifically, the confluence of the two. Therefore, the story of the transport of materials should be the focal point, and the site for telling that story should be one with a clear view of the confluence.

Key Ice Age Floods Interpretive Opportunities

No easily accessible visible evidence of the flood can be seen partly because the ocean level is about 300 feet higher today than it was during the Ice Age when the floods occurred. That means the shoreline was miles farther to the west. Regardless of the lack of landforms sculpted by the floods, the viewshed does contain two features associated with the event: the Columbia River and the Pacific Ocean – specifically, the confluence of the two. Therefore, the story of the transport of materials should be the focal point, and the site for telling that story should be one with a clear view of the confluence.

Key Site Parameters and Audience Characteristics

- The story at this location is about the sediments carried into the ocean, therefore, the best place to tell the story is at a place where the confluence of the Columbia and the Pacific Ocean is clearly visible. However, the best sites with such a view are on top of the main headland, and specifically at the Lewis & Clark Interpretive Center, which already contains interpretive strategies focusing heavily on the Lewis & Clark Expedition and other aspects of the cultural history of the area.
- It is possible to see the confluence from other areas accessible to the public, such as the area under construction on the north side of the headland. However, viewing the confluence from the elevated location of the interpretive center is superior to any easily accessible site in the rest of the park.

- This is one end of the terrestrial pathway of the floods, Missoula being a portal for the other. Therefore, this could be the beginning of a trip back along the pathway of the floods.
- At the very least, many of the people visiting this park may be traveling along the Columbia River after leaving the park, and may get as far as Portland or Vancouver, where evidence of the floods are more visible.
- This location could also serve simultaneously as an end, a fulfilling finale, to those who followed the route of the floodwaters down current from Missoula or Spokane.
- Physical evidence of the flood does not occur in the area surrounding the park so it is difficult to create a 'hub' at this park. However, it can be considered a portal or starting point to motivate visitors to visit other sites after they leave.
- This site does have the advantage of an indoor facility with a retail outlet. Thus there are more options for interpretive strategies, plus distribution of guidebooks and other strategies for sale can be accommodated.
- Day-use visitation is typically short in duration (<1 hour). Day-use visitors are attracted to scenic views, hiking and the Interpretive Center.
- Locals use the boat launch facility heavily in the fall.
- This is the busiest overnight camping State Park in Washington. Most visitors have reservations, are not local to the area, and prefer to camp in the Benson Beach Area rather than near the park entrance. Between May and August between 600-1500 people stay in the park nightly. Queries about the Ice Age Floods are rare. Typically visitors ask about the Lewis and Clark expedition, military history, local flora and fauna, and maritime history. Geologically speaking, visitors occasionally inquire about the ancient basalt sea stacks in the park.
- Commercial bus tours arrive about one per week between April and November. Cape Disappointment also operates an internal 18-passenger park shuttle in the summer season, with stops at interpretive sites, day-use areas and the campground. Visitors in the winter months are largely retirees, with family groups prevalent in the summer. Visitors from Asia, Eastern Europe and Russia, and Germany are not uncommon.

Comments

This is the end of the route for anyone traveling the flood path unless they were then to get in a boat and travel in the Pacific Ocean. This park and the interpretation in it are heavily geared toward cultural history, with a current emphasis on Lewis and Clark. As with Columbia Hills, we want to exercise caution in providing too many stories in the same place.

Eastern Region

The eastern region can be divided into the following four distinct sub-regions.

Spokane Cheney Area:

This area contains three units in the study, Riverside State Park, Centennial Trail and the Columbia Plateau Trail. The following are key points relevant to this area: Spokane is a key Hub Community. It is the portal to the state of Washington for travelers coming from the east and a portal to Idaho and Montana for travelers from the west. It is also the point where floodwaters encountered a much steeper gradient – from 9 feet per mile along the Spokane River to 25-30 feet per mile due to tilting of the lava beds. The increase in gradient meant increased speed and more erosional force. As a consequence, scablands begin to appear just south of the city. The floodwaters split into three parts in approximately this area with one part continuing along the Spokane River, another heading south-southwest, through the Cheney area and down the Palouse drainage and a third part going down the Crab Creek drainage. The park units in this area are not the best sites for a portal facility, such as a regional interpretive center. Therefore, we foresee a multi-agency visitor or interpretive center in or near Spokane. The strategies considered for the sites in this area were considered within the context of having a central information/interpretive facility somewhere in the area, but not on property managed by WSPRC. This is the best point to access sites in Idaho, including the interpretive displays at the dam in Cabinet Gorge and the interpretive opportunities in Farragut State Park (Idaho).

Central-Eastern Washington:

This area contains the majority of sites in the project, and a vast array of features for interpretation. The following are key aspects of the region that could affect what happens at these park units: This area is the heaviest concentrations of Ice Age Floods features in the eastern Washington.The Coulee Corridor National Scenic Byway traverses this area. Moses Lake, on Interstate 90, provides a hub for exploring these sites and others associated with the Ice Age Floods. There are future opportunities around the Moses Lake area to partner with other land management agencies (Washington Department of Fish and Wildlife, US Bureau of Reclamation, US Fish and Wildlife Service) for interpretation of the Ice Age Floods. Dry Falls Interpretive Center is the long-standing jewel of the interpretive sites associated with the Ice Age Floods. The access route between the sites contains many other features associated with the Ice Age Floods, making an auto tour a logical strategy. The area contains two of the most spectacular features associated with the floods, Frenchman Coulee and Moses Coulee. Neither is under the jurisdiction of the WSPRC, but Frenchman Coulee is under the jurisdiction of the Washington State
Department of Fish and Wildlife. Wenatchee is a logical Portal Community. It is located on the edge of the flood region, is very supportive of flood interpretation, has a number of features in the town that are interpreted through an auto tour, and has a museum that is planning an Ice Age Floods exhibit. Wanapum Vista, on the east side of the river off Interstate 90, would be a good place for interpretive panels but evidently has issues with vandalism.

The Tri-Cities Area:

This region contains three units, Sacajawea State Park, Palouse Falls State Park, and Lyons Ferry. The west part of the Columbia Plateau Trail is also in this area. The following are key aspects of the region that could affect what happens at these park units: Although there are few park units in the area, the area contains a large number of features associated with the Ice Age Floods. A key feature, Wallula Gap, does not have any fixed interpretation at the present time. A new interpretive center is being designed for the Hanford Reach National Monument (US Fish and Wildlife Service) with a variety of community partners. The site is in Richland and will have some interpretation (audiovisual and exhibits) focused on nearby Ice Age Floods features (i.e. Wallula Gap). The Tri-Cities is well situated to be a Hub Community for the interpretive network associated with the Ice Age Floods and the new interpretive center could be the best focal point within that hub. Given the distribution of features, the road system and the location of park units, this area is well situated for auto tours, although they may need to originate at sites other than park units because Palouse Falls is remote and Sacajawea does not have outstanding features associated with the

and will have some interpretation (audiovisual and exhibits) focused on nearby Ice Age Floods features (i.e. Wallula Gap).The Tri-Cities is well situated to be a Hub Com munity for the interpretive network associated with the Ice Age Floods and the new interpretive center could be the best focal point within that hub. Given the distribution of features, the road system and the location of park units, this area is well situated for auto tours, although they may need to originate at sites other than park units because Palouse Falls is remote and Sacajawea does not have outstanding features associated with the floods. The Lake Lewis Chapter of the Ice Age Floods Institute has received several grants to produce Ice Age Floods interpretive materials (map and signage).

Eastern Columbia Gorge:
This area, with Maryhill and Columbia Hills State Parks, has significant scabland features and a variety of interpretive opportunities related to the Ice Age, including an interior exhibit at the Columbia Gorge Discovery Center in The Dalles, Oregon, and a film at the Columbia Gorge Interpretive Center in Stevenson, Washington. The Ice Age Floods Study of Alternatives proposes that the primary Connecting Pathway for the Ice Age Floods Trail cross from Washington to Oregon on Highway 97 and use Interstate 84 through the Columbia Gorge. Highway 14 on the Washington side is proposed as a Loop & Spur Pathway. However, one of the reasons for this is that the study proposes the Columbia Gorge Discovery Center be a hub. Given that it costs $8 per person to get into the center, and that it does not focus on the floods, it may be better to develop a hub in an area dominated by Ice Age Floods features, such as the scabland features in Columbia Hills State Park.

Bridgeport State Park

Ice Age Floods Significance
This area can be considered both an Ice Age Flood site and an Ice Age site as the Cordilleran Ice Sheet covered it. It could be used to focus on the role of the ice sheets in the formation of Grand Coulee and Moses Coulee.

Key Ice Age Floods Interpretive Opportunities
The two key features available for interpretation are the Columbia River and glacial erratics. This was the route of the river when it was not being dammed by ice. However, at this point it is a lake backed up by Chief Joseph Dam. The site is known more for 'haystacks,' which are glacial erratics moved here by the ice sheet.

Key Parameters
- The site is on Lake Rufus Woods, the body of water created by Chief Joseph Dam.
- Apparently, interpretive programs are offered during the summer on a number of topics by the US Army Corps of Engineers.
- This may be a key spot from the perspective of it being the confluence of the Okanogan Highlands, the Columbia River basalt flows, the Ice Sheet and the Ice Age Floods.
- This site is shown on maps associated with the Ice Age Floods to be outside the area impacted by the floods.

Columbia Hills State Park

Ice Age Floods Significance
This site was deeply inundated by the floods, and bears the marks of that inundation in the form of erosional features representative of scablands – the landscape typical of the bottom of a river that has been scoured by flowing water. But, the site is significant for many other reasons: It is the first of the sites in this project traveling from west to east where clear evidence of the flood exists. Given that it is easier to interest a visitor and tell them a story he or she can 'see' in the landscape, this site has the potential to become a key portal for visitors traveling to the east. It is also near the east end of the Columbia Gorge, which means it can be used to tell the story of the gorge and the flood waters, especially to visitors who will from here travel west.

Key Ice Age Floods Interpretive Opportunities

The key visuals in this location tie to the story of the formation of scablands – the areas scoured by the Ice Age Floods. From the higher elevations several features across the river can be viewed, including sand dunes and places where floodwaters overflowed the side-walls of the gorge.

Key Parameters and Audience Characteristics

- The primary interpretive focus and what it is well known for at this park are petroglyphs, pictographs, and associated Native American culture. The vast majority of visitors go to the specific area where they can see the petroglyphs and pictographs. That area also contains signs relating to Lewis & Clark, Native Americans of the area and geology.
- The upper section of the park, north of the highway, is not developed. But it has good views of the scabland features in the lower section of the park and visual access to features across the river.
- Although the park has a campground, it has few sites.
- Although features related to the Ice Age Floods can be seen in the landscape as travelers continue east along the gorge, the next major feature is Wallula Gap, which does not have interpretation yet, and the next WSPRC park area with interpretive opportunities is near the Tri-Cities.
- The site is at the eastern gateway to the Columbia River Gorge, so it could be used as a portal for people to explore that feature.
- The existing infrastructure is not conducive for a hub or portal type of park. Although it does have a park office where literature is distributed, that facility is small and is not along the major access to or within the public area of the park.
- The visitors to this park are interested in short hikes and currently get sent to the Butte to use social trails.
- Interpretive sign exhibits on the Lewis & Clark Expedition are located at the river end of the gravel parking area near the petroglyphs.
- Commercial riverboat cruises (Portland to Snake River) disembark at various points along the Columbia and Snake Rivers; some interest was expressed in the past to stop here for passengers to view the petroglyphs and pictographs.
- Recommendations for developing the park include expanding the camping area to 50-100 units and developing a group campsite.

Comments

Given the focus on cultural stories, including Native Americans and Lewis & Clark, perhaps a focus here should be on the impact of the floods on human lifestyles, in other words, geo-determinism. There is limited evidence that humans witnessed the floods. But certainly, the floods had significant impact on subsequent human lifestyles. The event affected the ability to grow crops in many parts of the region – the Willamette Valley, the Quincy Basin, the Walla Walla Valley and other areas benefited from the deposit of soil while other areas, such as the scablands of eastern Washington, became areas where crops were not an option. The floods carved coulees that became travel and trade corridors, created gravel deposits from which we mine building materials and created flat ground where we build towns and cities, such as East Wenatchee, Portland and Vancouver. A linkage to this storyline might be to locate a culturally appropriate legend of this flood from local or regional Native American oral tradition if one exists to introduce this connection. Coordination with cultural liaison offices of nearby tribal groups would be needed. There are several features typical of scablands, such as basalt outcroppings, depressions and bare rock instead of soil. These could be a part of an interpretive trail and/or could be interpreted from a viewpoint along the road into the Dalles Mtn. Ranch part of the park.

Columbia Plateau Trail

Ice Age Floods Significance

This 130-mile trail on the old Milwaukee Railroad right-of-way passes through the heart of scablands excavated by the Ice Age Floods. A person using the trail has visual

access to many features related to the Ice Age Floods and to the Columbia River basalt flows that set the stage for the impact of the floods.

Key Ice Age Floods Interpretive Opportunities
The trail passes by both erosional and deposition features associated with the Ice Age Floods. In areas around Cheney floodwaters slowed, dropping some bedload, including large boulders. In other areas, the floodwaters scoured the landscape, leaving behind scabland that now has only a thin layer of soil and sparse vegetation.

Key Parameters

- At present time, only a 23-mile section of trail between Lincoln County and Cheney has been developed and is open to the public. There is pressure to upgrade the rest of the trail (pulverize rock ballast to smooth out surface). Depending on development funds, plans are to continue work on the trail and upgrade its condition for greater use by the public.
- The developed northern part of the trail has 4 trailheads, each with restrooms and an informational kiosk. Two of the trailheads also have picnic facilities. The plan calls for 7 additional trailheads, a connector trail to Sacajawea State Park and a connector trail to Spokane. The plan also calls for a visitor center at Kahlotus.
- Unlike the Centennial Trail, this trail passes primarily through a rural landscape that is sparsely populated.
- Not many people currently use the trail.
- Because of the remote nature of the trail, especially away from the access points, a high possibility for vandalism exists.
- Dr. Gene Kiver, retired geology professor from Eastern Washington University, has documented Ice Age Flood features along the trail for possible future interpretation.

Crown Point Heritage Area

Ice Age Floods Significance
This is at a key point in the path of the floods – the point where most of the time floodwaters were diverted south across the landscape owing to blockage of the Columbia River by the Okanogan ice lobe that diverted the Columbia River. The blockage caused the floodwaters to erode new channels, forming Grand Coulee and Moses Coulee.

Key Ice Age Floods Interpretive Opportunities
This site has a good view of the Columbia River and the start of Grand Coulee and a view downstream – an excellent location to focus on the stories of the role of the lobes of ice blocking the Columbia River and forcing the waters down the Grand Coulee.

Key Parameters

- This is a party spot with a high potential for vandalism.
- The site contains an old architectural structure consisting of pillars and a roof. Grand Coulee Dam dominates the view.
- The area has a lot of visitation in the summer when evenings include a light show across the water spilling from the dam.

Comments
Lake Roosevelt is a miniature of Glacial Lake Columbia so that aspect of geomorphologic history could be interpreted here.

Daroga State Park

Ice Age Floods Significance
This site is along the pathway of the floods that came down the Columbia as opposed to Grand Coulee or Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

The Columbia River is the key visible feature associated with the Ice Age Floods at this site. Floodwaters were 1000 feet deep here.

Key Parameters

- A large numbers of day and overnight visitors use the park, including boaters.
- The site is opposite an earthquake point on the other side of the river.
- The park is essentially on a linked series of islands and causeways in the river.
- The opposite bank contains cliffs comprised of rock that was more resistant to the Ice Age Floods, thus it can be used to focus on the role of basalt in the creation of features elsewhere.
- The overnight and Day Use areas are spread out along the river, thus it is difficult to find one location frequented by all visitors.

Fort Okanogan State Park

Ice Age Floods Significance

Similar to Bridgeport State Park, this area can be considered both an Ice Age Flood site and an Ice Age site as the Cordilleran Ice Sheet covered it. It could be used to focus on the role of the ice sheets in the formation of Grand Coulee and Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

Visual access to Columbia River creates the opportunity to focus on the role of the ice sheets in the route taken by floodwaters across eastern and central Washington.

Key Parameters

- The site has an interpretive center, dedicated primarily to cultural history.
- The displays need upgrading.
- The site also has a viewpoint, with interpretive panel, behind the visitor center. The site has an excellent view both up and down the river, but the trail is not fully accessible.
- This site is shown on maps associated with the Ice Age Floods to be outside the area impacted by the floods.

Ginkgo Petrified Forest State Park

Ice Age Floods Significance

Ginkgo Petrified Forest is a relatively significant site in terms of the Ice Age Floods Interpretive Network. The site contains or has good visual access to a lot of features associated with the Ice Age Floods, including ice-rafted erratics, bergmounds, and cliffs of columnar basalt sculpted by flood waters. The park is currently best known for petrified wood, which is a related story in that the Columbia River basalt flows – a key to features formed by the Ice Age Floods - played a role in forming the deposits of petrified wood.

Key Ice Age Floods Interpretive Opportunities

The features visible from the interpretive center – the sheared off cliffs showing the underlying layers of Columbia River basalt flows at Vantage, create a good opportunity to focus on the story of the Ice Age Floods and the role of the basalt flows in creating the opportunity for the flood waters to carve the features that are visible today. The bergmounds and ice-rafted erratics create the opportunity to tell the story of the role of the ice sheet in the floods, and in the impact of depositional features caused by slackwater.

Key Parameters

- Name of the park is Ginkgo Petrified Forest, which creates expectations for features and topics to be interpreted.
- The site, especially the interpretive center, receives very high visitation in part because it is just off Interstate 90, the major east – west transit route across the state, and the major transit route linking Idaho, Montana and Washington.
- Erratics (basaltic and granitic) and other iceberg related features are throughout the park. Erratics can be seen along interpretive trail that currently focuses on the petrified forest.
- The interpretive center, campground (Wanapum) and interpretive trail are all separated too far for access other than by vehicle including bicycle.
- The interpretive center is easily accessible from Interstate 90.
- Frenchman Coulee is located just across the river from eastern edge of State Park.
- The site gets a lot of visitors who are attending evening concerts in the Gorge Amphitheater who have time for day trips.
- The site is 30 miles away from a significant concentration of lodging and eating establishments (Ellensburg).
- The species of the trees that were petrified are indicative of climate change.
- The site already receives a high amount of visitation.
- The site has an existing interpretive center.
- The site is a good location for an auto tour of Ice Age Flood features to the east.
- The site is near Frenchman Coulee (Washington Department of Fish and Wildlife), one of the most spectacular erosional sites associated with the Ice Age Floods.

Lincoln Rock State Park

Ice Age Floods Significance

This site is along the pathway of the floods that came down the Columbia River separate from Grand Coulee or Moses Coulee.

Key Ice Age Floods Interpretive Opportunities

The rock walls on opposite side of the river are eroded by Ice Age Floods. The rock just upstream of the park (Turtle Rock) is landslide feature that probably preceded the floods.

Key Parameters

- This site has an amphitheater.
- A walkway exists along the edge of the river.
- Good views of the Turtle Rock upstream and of the rock walls across the river are available from a point of land in the Day Use Area near the major parking area.
- A lot of boaters use this area.
- There is a concession facility located near the restrooms in the Day Use Area. The combination of the two probably attracts a lot of people to this area.

Maryhill State Park

Ice Age Floods Significance

This site would have been inundated during the deepest Ice Age Floods. But it does not exhibit the scabland features that dominate Columbia Hills State Park.

Key Ice Age Floods Interpretive Opportunities

The key opportunities relate to the Columbia River and the basalt cliffs across the river. The cliffs of columnar basalt were reshaped when the Ice Age Floods rinsed off the landscape up to hundreds of feet high. The demarcation line is discernable if a person knows what to look for. The Columbia River represents the pathway of the floodwaters.

Key Parameters and Audience Characteristics

- This is not the best site for viewing the basalt cliffs as an impact of the Ice Age Floods. An overlook part way up the grade on the Washington side is better because it is higher and the view is unobstructed. Several other sites along Highway 14 also have good views of this feature, including the one with an information kiosk operated by Klickitat County.
- Although this site is along the highway, it is a campground without a lot of enticing interpretive features (as opposed to Columbia Hills State Park).
- According to park staff, camping picks up in March and the campground is full throughout the summer. They get lots of windsurfers when the wind is blowing strong and also a lot of boaters. The Day Use area is busy on the summer weekends for family reunions.
- According to park staff, a lot of visitors are families and retired couples.
- From a location perspective, the site is adjacent to Highway 97 as it crosses from Oregon to Washington, and visitors must pass through scablands either on the Oregon side or Washington side to reach this site.
- This park is outside the official boundaries of the Columbia Gorge National Scenic Area.

Comments

This is a minor site for its features, but a good place to capture people because it is a campground and Day Use area. The campground is a good place to function as a secondary hub – to excite people about taking an interpretive tour of the surrounding area, which includes Maryhill Museum, the Columbia Gorge Discovery Center (across the bridge and back to The Dalles), replica of Stonehenge (a World War I memorial), the Interpretive Center at Stevenson, and Columbia Hills State Park. There is a nearby existing overlook along Highway 14 that already has interpretive panels on a variety of topics. The advantage of reaching people at this site is that it won't matter if they turn east or west on Highway 14; they still would have been exposed to the story and will know where else they can go for more information, and it does have the potential to reach people who are heading south.

Palouse Falls State Park

Ice Age Floods Significance

The Ice Age Floods had a number of impacts on topographic features, including shaping existing features and creating new ones. Palouse Falls and the channel up and downstream from the falls are examples of new features created by the floods. The Palouse River used to flow down what is now Washtucna Coulee, but the floodwaters carved a new route and the spectacular canyon that heads at Palouse Falls. This feature is one of the icons of the Ice Age Floods, and arguably one of the top 5 topographic features associated with the event. It is probably one of the two most significant sites under the jurisdiction of the WSPRC.

Key Ice Age Floods Interpretive Opportunities

The topographic features in the viewshed at this site create a number of interpretive opportunities. The exposed basalt layers can be used to tell the story of the Columbia River basalt flows that were a key factor in the features carved by the flood waters – the waters could easily pluck out columnar basalt blocks, erode the base rock and cause undercutting of the rock formations.

If the substrate were granite or another more resistant type of rock, the spectacular cliffs and coulees associated with the event would not have been as well formed. The downstream canyon, with its exposed basalt cliffs, can be used to tell the story of erosion by the floods, and how high that erosion occurred. The falls and the rock formations at the top can be used to talk about the erosional effects of floodwaters, how they scoured the land and eroded less-resistant rock faster than other rock. The falls can also be used to tell the story of receding cataracts as the floodwaters plucked basalt from the base and eroded back in the direction from which the water flowed.

Because water seeks its lowest point due to gravity, the floodwaters took short cuts when they could. The floodwaters in this area left the existing drainage patterns (Washtucna Coulee) and continued its southerly movement, right across the plateau. This concept is very hard to describe in words – this concept is better illustrated through aerial photographs.

Finally, the surrounding environment and associated flora and fauna can be used to tell the story of long-term impacts of the event in terms of dictating to some extent what could grow in an area that had been scoured of topsoil. Since wildlife depends on habitat, the effect on vegetation also had an effect on the rest of the biota that live in this ecosystem.

Key Parameters and Audience Characteristics:

- The site is a significant distance (37 miles) from any major highway, with the last stretch of road on gravel. (The road is not under the jurisdiction of the WSPRC.)
- The infrastructure at the park is dated and not up to ADA standards.
- The site is used by bus tours coming off cruise ships traveling up the Snake.
- The access roads to this site pass by a number of features related to the Ice Age Floods so it is a good site to be included on or the focal point of an auto tour. It could also be included in a tour of the countryside from Walla Walla.
- The park is known for rattlesnakes in the summer.
- The park has experienced significant visitation in the past by Hispanic families and groups for fishing purposes. This dropped when the fee was implemented, but could revert when the fee is lifted. Consideration should be given to providing some interpretive materials in Spanish or providing bilingual signage.
- Commercial bus tours come in August – October. Sometimes 2 buses/day, 3 times per week. During the peak late summer season there is a minimum of 3 buses per week. Buses pick up from Lyons Ferry Marina (off of river cruise boats) and bring visitors up to park where the rangers give a short talk.
- Visitors express some interest in the Ice Age Floods story. They ask for copy of article on kiosk but park staff cannot keep it stocked.
- Visitors want more locations to hike from the park. Some hike to the Pinnacles area above the falls on social (not official) trails. There are some concerns about safety.
- Visitors complain about the access road and, according to park staff, consider it dangerous and difficult. It produces lots of dust and dirt in summer. It is graded once a week but cannot be kept smooth with that level of maintenance.
- The park is near the Marmes Rock Shelter site located closer to Lyons Ferry Park (US Army Corps of Engineers).
- The park has a one-page handout on the geologic history of the State Park and an Indian legend on how it was formed.

Comments

For this to be a primary site for interpreting the Ice Age Floods the infrastructure needs to be upgraded and perhaps re-designed to accommodate the type of traffic it receives or could receive. Specifically, the parking area needs to be re-designed so it is easy for buses to let visitors off, pick them up and park. The trail and viewpoint adjacent to the parking area needs to be upgraded, as does the trail to the upper viewpoint. The latter trail should be re-designed as a series of switchbacks so it ADA compliant and so it has the potential to be used as an interpretive trail with a series of stops. Finally, a staging area near the parking area, in the shade, with benches should be developed to accommodate bus tours. The upgrades combined with programs offered by rangers may allow the State Parks to charge more for providing interpretation to bus tours.

Potholes State Park

Ice Age Floods Significance

The loose wind-blown sand that created dunes and depressions of the Moses Lake area was drawn from the wind reworking the sandy Ice Age Flood deposits that filled the Quincy Basin. The wind shaped the sand into typical crescent-shaped sand dunes. Moses Lake is one of the few natural lakes in eastern Washington that does not flood a scabland basin.

Water collecting in the depression created what have been termed 'potholes' although they are not true potholes of the type created by moving water when rock is swirled by high velocity currents and "drill" a hole into the ground. When O'Sullivan Dam was built forming Potholes Reservoir, many of the dunes were inundated.

Key Ice Age Floods Interpretive Opportunities

Key interpretive opportunities must connect to visible features. In this location, there are no really good interpretive opportunities in the areas of this park visited by most people because the sand dunes are in the north part of the park and the primary visitor facilities are in the south. However, the Drumheller Channels, one of the most spectacular scabland tracts associated with the Ice Age Floods, are just to the south. These highly eroded channels illustrate the tremendous power and force of the Ice Age Floods.

Key Parameters

- No features associated with the Ice Age Floods are clearly visible from the main areas of visitor concentration in the park. There is no good place to sell any publications.
- The key features in the area, the Drumheller Channels (Columbia National Wildlife Refuge – US Fish and Wildlife Service), are not in the park but to the south of the park.
- This is a good 'hub' for exploring the surrounding area, which has exceptional features. There are ice-rafted erratics along the roadway to the west, Drumheller Channels to the south, potholes to the north, and Lind Coulee along the eastern margin. All these could be highlighted on a loop auto tour through the area developed in partnership with State Parks.
- Boaters heavily use the area.
- The entryway to the park has an area for distributing brochures. The guide to the Coulee Corridor Scenic Byway could be distributed at this location. I
- n the spring, the visitors come primarily for fishing; in the summer, they come primarily for fishing and water sports and to sunbathe.

Riverside State Park

Ice Age Floods Significance

This park occupies high areas that provide a good view of the pathway of the floods on their way through the Spokane area. It also contains landslide blocks – blocks of basalt that ended up in the valley floor due to erosion of the Latah Formation at the base of the basalt by the Ice Age Floods. The basalt cliffs also provide the opportunity to interpret the role of basalt in the creation of features associated with the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities

The most compelling feature along the route is the Bowl and Pitcher in the Spokane River. The feature is a result of basalt flows covering the area on top of the Latah Formation. The Ice Age Floods eroded the Latah Formation to undercut the basalt, causing huge chunks of the rock to fall into the river valley. Basalt cliffs prominently displaying columnar basalt provide the opportunity for interpreting the basalt flows that set the stage for sculpting by the Ice Age Floods, and then the role of the floods in shearing off the basalt to create the cliffs.

Key Parameters

- Spokane is a key Hub Community. It is the portal to the state of Washington for travelers coming from the east and a portal to Idaho and Montana for travelers from the west. It is also the point where floodwaters encountered a much steeper gradient – from 9 feet per mile along the Spokane River to 25-30 feet per mile due to tilting of the lava beds. The increase in gradient meant increased speed and more erosional force. As a consequence, scablands begin to appear just south of the city. The floodwaters split into three parts in approximately this area with one part continuing along the Spokane River, another heading south-southwest, through the Cheney area and down the Palouse drainage and a third part going down the Crab Creek drainage.
- The park units in this area are not the best sites for a portal facility, such as a regional interpretive center. Therefore, we foresee a multi-agency visitor or interpretive center in or near Spokane. The strategies considered for the sites in this area were considered within the context of having a central information/interpretive facility somewhere in the area, but not on property managed by WSPRC.
- This is the best point to access sites in Idaho, including the interpretive displays at the dam in Cabinet Gorge and the interpretive opportunities in Farragut State Park (Idaho). •
- The park has 2 campgrounds – one primitive and one with water/hookups/electricity – and 2 large group camps that are used by various kinds of groups (students, church, youth, etc.)
- Most campers stay 2-3 nights and then leave.
- The park has an interpretive program in summer months with local speakers.
- Some local bus tours use the park for the day, such as senior outings.
- Most of the use is day use.
- Although some areas receive more use than others, it is a large park with a variety of use areas.
- The park contains the Little Spokane Natural Area, an area managed for nature observation, bird watching and low impact recreation. The area has restricted uses for preservation purposes.
- The area has an equestrian area.
- The Centennial Trail runs through the park.
- The Spokane House Interpretive Center, with exhibits focused on cultural history, is located in the park, but not in the area most heavily used.

Centennial Trail

Ice Age Floods Significance

This is a 39-mile trail from the Spokane River to the Idaho border with some parts paved and some not. As with the Columbia Plateau Trail, the Centennial Trail passes through area impacted by the Ice Age Floods. The Flood changed the course of the river that previously flowed in the area of the Little Spokane River.

Key Ice Age Floods Interpretive Opportunities

The specific feature related to the floods, other than general shaping of the landscape, is the Bowl and Pitcher within Riverside State Park. This feature is actually due to a combination of events, including basalt flowing over and into the Latah Formation, which was unstable material, and the Ice Age Floods waters eroding the unstable material and undercutting the basalt blocks, causing them to fall into the valley floor.

From high points within the park a visitor can view the pathway of the floods as they came through the Spokane area. Erosion in the Spokane River is in part due to the floods, but also due in large part to erosion in subsequent years.

Key Parameters

- According to park staff, the use of the trail is primarily by activity-oriented recreational Day Users (runners, walkers, bicyclers and some equestrians).
- According to park staff, there is consistent use by return visitors, mostly from the Spokane area and region.
- According to park staff, users may not be interested in in-depth information.
- According to park staff, many users get information about the trail from the local Convention and Visitors Bureau in downtown Spokane.
- The trail passes through Riverside State Park.
- Because of the heavy use of this trail, it may a good idea to use as a "recruitment area" that encourages visitors to check out other Ice Age Flood opportunities.

Sacajawea State Park

Ice Age Floods Significance:
The park is at the confluence of the Snake and Columbia Rivers, and is likely sitting on top of bedload deposited by the Ice Age Floods, overlain by later sediment deposited by the two rivers.

Key Ice Age Floods Interpretive Opportunities
This is the closest WSPRC property to Wallula Gap, which was the bottleneck that caused a hydraulic lake to form over the Pasco Basin. However, the Gap cannot be seen from this site. The rounded hills in the viewshed would have been islands in the floods, so the height of the flood and its tremendous depth of water can be pointed out from the site.

Key Parameters

- Maya Lin, designer of the Vietnam War Memorial in Washington D.C. is designing an installation at Sacajawea State Park as one of seven sites along the Columbia River commemorating the Lewis and Clark Expedition and honoring the native cultures that made it possible. At Sacajawea State Park, she will inscribe a day's Lewis and Clark Journal entry on dock planks. She also plans a nearby compass pointing to tribal homelands, showing size and how many days away by foot, then and now. It will be important to coordinate storylines in the park to avoid visitor confusion.
- Although this site would have been underwater during a flood event, there is no visible evidence of the Ice Age Floods at this site.
- This is a heavily used park so information at this site could reach a lot of people.
- The site is close to the main highway from Tri-Cities to Walla Walla and could be a start point or stop along the way for a loop auto tour encompassing Lyons Ferry, Palouse Falls, Washtucna Coulee and numerous other features associated with the Ice Age Floods.
- The site contains a staffed indoor interpretive facility, so it would be possible to sell guidebooks and other non-fixed strategies associated with the Ice Age Floods. It would also be possible to put an exhibit in the facility.
- A regional bike trail connects the park with the City of Kennewick.

Comments
This is not a prime site for telling the flood story. However, this site gets a lot of visitation, and is positioned well to guide people on a loop auto tour that included Palouse Falls State Park, Lyons Ferry and other sites in the area.

Steamboat Rock State Park

Ice Age Floods Significance

Steamboat Rock is an erosional remnant of the Ice Age Floods. What could be significant is the granitic rock just upstream from the feature. The granite was resistant, which reduced the force of the water on Steamboat Rock, which is why it was not entirely eroded away with the rest of the rock. This is also the point where Ice Age Flood waters came into the coulee from Northrup Canyon.

Key Ice Age Floods Interpretive Opportunities

The rock, lying in the middle of the upper Grand Coulee, is an erosional remnant and at one time would have separated two cataracts of an immense cataract in the upper coulee. With the height of the rock and breadth of the Coulee, the amount of sediment gouged out by the waters can be illustrated. Also, the contrast between the granitic rock upstream andthe basalt cliffs is a good opportunity to focus on the role the basalt played in creating the features evident today. Several features in Northrup Canyon show the erosional effects of the floodwaters. The top of Steamboat Rock exhibits evidence of different geomorphologic events. It is built of basalt flows, has erratics dropped by the Cordilleran Ice Sheet itself when it filled Grand Coulee, moraines from the ice sheet during the ice ages, and a preglacial coulee shaped from the Ice Age Floods.

Key Parameters

- An amphitheater is planned for an area near the Day Use Area.
- The Day Use Area has good views of Steamboat Rock, the basalt cliffs of the Coulee and the granitic rock upstream.
- The park has a large number of overnight sites and is heavily used in the summer. To enter and leave the park, a visitor travels through Grand Coulee. Thus it is a good place to provide auto tour information for people going north or south.
- Northrup Canyon Natural Area has an existing parking area, restroom and trail.
- A lot of people hike the trail to the top of Steamboat Rock, but it is not an easy trail.
- Boaters are major users of the park.

Sun Lakes – Dry Falls State Park

Ice Age Floods Significance

This site is the head of the lower Grand Coulee, which was one of the major features formed by the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities

From the base of the coulee, a visitor has spectacular views of the surrounding columnar basalt of the coulee walls. This also provides a good perspective for comprehending the huge volume of material eroded away by the floods.

Key Parameters

- The Dry Falls Interpretive Center is just up at the top of the grade. Some form of "promotion" may be needed to encourage park visitors to investigate the center.
- An amphitheater is being planned for this park.
- Camp Delaney, a rustic group retreat center within Sun Lakes – Dry Falls State Park, is managed by the WSPRC.
- A major regional resort operated by a concessionaire is within the park.

Dry Falls Interpretive Center

Ice Age Floods Significance
This is possibly the most spectacular site for interpreting the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities
The dry falls create the opportunity for interpreting a receding flood cataract. The basalt cliffs create the opportunity to tell the story of the role of basalt in evolving the features associated with the Ice Age Floods. The breadth and depth of the coulee at this point presents a good opportunity to focus on the amount of material removed by the floods. The presence of the Grand Coulee, a topographic feature shaped by the Ice Age Floods, creates the opportunity to focus on the impact of the floods in evolving new features in the landscape of the area. Finally, because of the road that people use to access the site, the story of the role of the floods in carving landscape that in turn dictates how humans use the landscape can be told (geo-determinism).

Key Parameters and Audience Characteristics
- The building is visually obtrusive and not well designed or laid out for interpretive strategies.
- The parking area is too close to the wall along the edge, making it difficult to put interpretive panels in that location. In fact, the parking area is so close that there is no opportunity to 'decompress' between getting out of the car and looking at the view.
- The rockwork is historic, built by the Civilian Conservation Corps. It includes the wall along the edge and a small shelter at the north end of the parking area. It also includes a very popular viewpoint that extends out from the small shelter.
- The parking area is not huge, no overflow parking exists, and the restrooms have limited stalls, thus it may not be appropriate to hold people on this site.
- The site is used by bus tours, including tours of Japanese visitors who come with a language interpreter. According to the staff, they are often traveling from Portland or Seattle to Spokane and on a schedule that has them needing to get to Spokane in time for dinner. Many times they only stop to use facilities. Many times they only stop to use facilities. The park staff's talks and answers to questions are translated through the tour director.
- This site experiences a big increase in visitation at certain times of activity in the rest of the park (i.e. when fishing season first opens and on subsequent weekends the visitor center experiences a lot of visitation in the afternoons).
- School group tours in spring. Often some teacher prep beforehand. Most groups just show up – some book a tour.
- Heavy visitation in summer during weekends and heavy weekend use during fishing season (April – May – especially weekends). According to staff, 50% are probably repeat visitors who bring back family and friends.
- Those who stay in campgrounds are recreation oriented (hiking, diving, swimming, motor craft). 20-30% of visitors stay all week in the summers.
- Kids have a prehistoric interest – ("Were there dinosaurs here?")
- Repeat visitors complain about old exhibits – nothing new.
- Not much interpretation when the visitor center is closed.
- Organized tours for seniors use the site.
- In the summer of 2005, themed (geology) bus tours were noticed at the park using videos purchased from the park to show on the buses.

Lake Lenore Caves

Ice Age Floods Significance
The caves were formed by turbulent floodwaters plunging over the lip above and eroding out the columnar basalt at the base. The caves are also significant because Native peoples used them for shelter and storage.

Key Ice Age Floods Interpretive Opportunities
The caves provide the opportunity to focus on the process by which the floodwaters formed caves at the base of basalt cliffs, and also how that process caused receding cataracts and therefore coulees. The tilted basalt beds in the center of lower Grand Coulee gives the opportunity to focus on the variety of forces responsible for the landscape, including basalt flows, tilting of the landscape and Ice Age Floods. Finally, the use of the caves provides a good opportunity to focus on geo-determinism, the role topography and geology play in dictating human use of an area.

Key Parameters
- The route to the actual caves is not easy, not ADA accessible, and could be regarded as dangerous, especially in the snow.
- The caves do not meet the expectations many visitors have for caves.
- The existing sign has been vandalized (shot).
- The parking area is less than a half-mile off the main highway and has a good, somewhat elevated view of the bottom of the lower Grand Coulee, which has a number of tilted basalt blocks or remnants protruding out of the Alkali Lake. This is near the area where the remains of a prehistoric rhino were discovered.
- The Coulee Corridor Scenic Byway Steering Committee has begun development of a watchable wildlife site using grant funds in cooperation with Washington State Parks. Developments include a fully accessible trail from the lower parking area to a point of land on the lake and interpretive panels on the trail. It also includes a flat area off the upper parking area that will be used for interpretive panels. Plans call for continuing the trail to the upper parking area, and connecting the two parking areas with a trail.

Wanapum Recreation Area

Ice Age Floods Significance
This site would have been inundated with the floodwaters of the Ice Age Floods.

Key Ice Age Floods Interpretive Opportunities
The key features visible from this site include Frenchman Gap, a narrow gap in the Frenchman Hills that would have caused floodwaters to back up the Columbia River, and basalt cliffs on the east side of the river that were created by the combination of layers of Columbia River basalt flows and the erosional force of the Ice Age Floods.

Key Parameters
- Many users of this campground are boaters and swimmers.
- The park is on the margin of the transition from the Cascades to the Columbia Basin.
- The park is only a few miles from the Ginkgo Petrified Forest Interpretive Center.

Comment
A major goal of the effort at this park will be to entice visitors to go to the interpretive center at Ginkgo Petrified Forest State Park.

Wenatchee Confluence State Park

Ice Age Floods Significance

The Wenatchee area was at the margin of the flood during much of the Ice Age Floods history. The significance of the site is not so much in features as in location. Greater Wenatchee has a very large array of features related to the Ice Age Floods, so the community is well positioned to be a 'Gateway' community for visitors who want to explore the story. With that in mind, the park can become a hub for exploration by those visiting or staying overnight.

Key Ice Age Floods Interpretive Opportunities

The actual site has no compelling features on-site related to the Ice Age Floods. However, Pangborn Bar, a large gravel bar formed by the floods, is visible across the river. From the beach area at the east end of the park (Day Use Area) a visitor can view the Columbia River, which was the pathway of the floodwaters. The height of the flood can be also be communicated using features visible on hillsides to the south.

Key Parameters and Audience Characteristics

- The site has a large number of overnight sites and is heavily used in the summer, which means interpretive opportunities have the potential to reach a large number of people.
- The site has no amphitheater.
- The site has interpretive kiosks adjacent to the main parking areas in the Day Use Area.
- The best site for viewing Ice Age Flood features is at the Day Use Area which is located at the east end of the park. It is likely that overnight visitors may not visit the Day Use Area and therefore would not encounter interpretive opportunities in that location.
- The site is adjacent to a bicycle/pedestrian pathway that crosses the river and accesses a nature area with interpretation. This is a regional pathway that connects to the rest of the city and both sides of the river.
- An Ice Age Floods auto tour brochure exists for the Wenatchee area.
- One of the major features associated with the event, Moses Coulee, is located a few miles to the south.
- A lot of volunteers can be recruited from the Wenatchee area.
- Pangborn Bar, on which East Wenatchee is built, and which is a feature left by the Ice Age Floods, also contains a Clovis archeological site.
- Visitors in the late fall and early spring are mainly retired couples, primarily living in RVs. Summer use includes families who camp and family reunions.
- Winter users include retirees and weekend users that ski at mission ridge.
- Park staff are seeing an increase in users who are Asian and Ukrainian.
- Day Use is primarily families and groups.
- Use by ethnicity is 70% Caucasian and 25 % Hispanic and 5 % other. This is predicted to change once the day parking fee is repealed. Prior to the day parking fee, the use was nearly 50-50 Caucasian/Hispanic.
- Used heavily for special recreation events in the area, such as youth sport tournaments, weekly softball tourneys, Community festivals.
- Visitor questions are primarily about amenities or things to do. Very few questions regarding any natural history.